

ERIE

NARRATIVE REPORT

January-December 1966

NARRATIVE REPORT
ERIE NATIONAL WILDLIFE REFUGE
Calendar Year - 1966

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UNITED STATES DEPARTMENT OF INTERIOR
Fish and Wildlife Service
Bureau of Sport Fisheries and Wildlife
Guys Mills, Pennsylvania

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NARRATIVE REPORT

ERIE NATIONAL WILDLIFE REFUGE

Calendar Year - 1966

I. GENERAL

- A. Weather Conditions. Significant deviation of weather conditions from long term norms occurred during all four seasons.

The latter half of the 1965-66 winter crystalized in one of the coldest January's in thirty years. Temperatures dipped 15° to 20°F below daily norms and averaged 5.7°F below the month's norm. Snow fell in blizzard proportions depositing 37 inches of snow cover in three storms during the last sixteen days of the month.

A warm spell coupled with 4 inches of rain during the second week of February broke the potential spring flood threat and started a gradual spring run off which peaked on March 5, approximately two weeks earlier than average.

Although spring began in its typically cool, wet fashion, the growing season started with cool, dry weather. Atypically late snow and frosts marked May, causing extensive damage to early fruit and garden crops. Droughty conditions continued during June and July. Almost no rain fell between mid-June and mid-July bringing crops to a standstill.

Temperatures averaged a little below normal for the entire growing season. Increased precipitation in August and September restored soil moisture and returned streams and ponds to near normal levels.

Fall came early. The season's first killing frost occurred on September 16. Cool temperatures continued and a trace of snow was recorded on October 20. Ponds were ice covered by November 4.

Snowfall during the last few days of November and the first two days of December accumulated to a depth of 18 inches. An unseasonal thaw accompanied by heavy rains melted this snow cover resulting in spring-like run off that approached flood status.

Temperatures averaged a few degrees above normal during the remainder of the month. Conditions remained open until Christmas. Nine inches of snow accumulated over the three-day weekend.

Temperature and precipitation records were collected at refuge headquarters. The mean precipitation figures reflect data collected by the weather station, 12 miles west of the refuge, at Meadville.

WEATHER SUMMARY
Calendar Year - 1966

Month	Precipitation		(Official) Mean	Temperature	
	Snow	Rain		Max.	Min.
January	43.50	2.85	3.00	60	- 5
February	11.30	4.00	2.52	52	0
March	16.70	2.49	3.27	70	0
April	10.25	2.85	3.59	79	22
May	3.00	2.01	4.01	80	22
June		2.59	4.31	88	28
July		2.33	4.25	83	38
August		5.25	3.46	82	40
September		2.94	3.01	82	32
October		2.41	3.31	74	25
November	12.00	4.72	3.09	66	16
December	<u>23.25</u>	<u>2.37</u>	<u>2.71</u>	61	-10
TOTALS	120.00	36.81	40.53 Extremes	88	-10

B. Habitat Conditions.

1. Water. Periodic thaws during the latter part of February melted most of the snow cover and resulted in a gradual spring run off which peaked during the first week in March. High water levels in the spring gradually decreased to near record, summer lows due to insufficient precipitation and high evaporation rates during most of the summer.

The drought conditions resulted in the lowering of the ground water table and combined with soil percolation to almost completely dry up Pools C and D. Pool B levels were maintained fairly well, dropping only about one foot. Both Lake and Woodcock Creeks ran at low levels during June and July.

August and September rainfall replenished the ground water table. The subsequent run off returned pool levels to near maximum management levels.

In early December a brief thaw preceeded by 18 inches of snowfall and accompanied by 4 inches of rainfall resulted in the highest pool levels and stream flows recorded during 1966. These stream flows approached flood stage on the refuge and peaked at flood stage downstream from the refuge on French Creek.

Maximum management levels were maintained throughout the balance of the year in accordance with the Annual Water Management Program. The initial flooding of two small upland ponds constructed during the summer was begun at the end of this period.

2. Food and Cover. Late spring and early fall frosts caused extensive crop damage. Millet and buckwheat plantings were late due to the prolonged delay in receipt of operating funds. The buckwheat was killed by frost and the acreage replanted to winter wheat. The winter wheat cover crop on Unit 4 was lightly utilized by migrant geese in October.

The early summer drought acted as a drawdown on wetlands and greatly increased emergent plant production in pools and along streams. With the increased water levels in the fall, natural waterfowl foods were in abundance.

Natural foods were adequate for all species of wildlife using the refuge.

II. WILDLIFE

4.

A. Migratory Birds.

1. Waterfowl. The first arrivals of the spring migration were three black ducks on March 3. By March 11, many mallards, blacks and especially pintails, had gathered on the lower portion of Lake Creek near Sugar Lake.

Other species occurring later the same month included whistling swan, Canada goose, wood duck, green-winged teal, scaup, ring-necked duck, bufflehead, canvasback, redhead, hooded merganser, and coots. Scaup, bufflehead, ring-necked duck, hooded merganser, pintails, and whistling swan remained on the refuge until late April before continuing their northward migration.

Waterfowl use continued at relatively low levels in 1966. A total of 166,581 use days were recorded for swans, geese and ducks during this period. Planned water facilities development combined with expanded land use programs are expected to begin to improve this situation in 1967.

Goose and duck use as related to refuge objectives and to habitat are depicted in the tables below.

Status of Waterfowl Use

<u>Use Days:</u>	<u>1966</u>	<u>Objectives</u>	<u>% Achieved</u>
Geese	5,786	500,000	1%
Ducks	160,374	1,000,000	16%

Waterfowl Use of Feeding and Resting Habitat

	<u>1966</u> <u>Use</u>	<u>Acres of</u> <u>Use Habitat</u>	<u>Use Days/Acre</u> <u>of Habitat</u>
Geese	5,786	360	16
Ducks	160,374	360	445

During this period 48% of the total use by ducks, geese and swans occurred in March and April, 37% May through August and only 15% September through November. The great difference between migrational use in the spring and fall is directly

related to the availability of water, a situation which can only be corrected by development of water control facilities.

Development of Pools 7, 9 and 1, as presently scheduled, will provide only the bare essential capacity this project needs to begin functioning as a National Wildlife Refuge.

Principal nesting species included wood duck, mallard, black duck, blue-winged teal, hooded merganser, and Canada goose in order of decreasing use. Waterfowl production around the three small upland pools near the office (Pools B, C, and D) was outstanding again this year, particularly in view of the fact that the pools comprise only 10 acres of marsh and water. A total of 80 ducklings in 11 broods were recorded on these pools. Pool B was the favored area in that water levels fluctuated less than Pools C and D during the summer rearing period. Total estimated waterfowl production during 1966 was 12 geese and 364 ducks. A summary of refuge duck production follows.

Duck Production Summary
1961 - 1966

	<u>'61</u>	<u>'62</u>	<u>'63</u>	<u>'64</u>	<u>'65</u>	<u>'66</u>
Total Wetland Acres	310	310	310	310	360	360
Total Duck Production	310	unk.	370	441	386	364
Duck Production/Wetland Acre	1.0	unk.	1.2	1.4	1.24	1.0

Overall duck production has remained relatively constant during the six years this refuge has been staffed. Annual estimates have been largely derived from incidental observations. At the most variation in these figures reflects additional land acquisition, personnel changes, and time spent in the field rather than actual changes in breeding populations.

The data collected on the three small upland pools near headquarters are much more reliable and better reflect the potential of this area for duck production. These data are summarized in the following table.

Duck Production Summary
Pools B, C, & D
1964 - 1966

6.

	<u>'64</u>	<u>'65</u>	<u>'66</u>
Wetland Acres	6	10	10
Observed Production	52	58	80
Production to Flight Stage	42	45	65
Production/Wetland Acre	7.0	4.5	6.5

Even the relatively high cost of impoundment development at this station can be justified to a large extent by production rates like those above. Although these duck production rates are not expected to be as high as on the major impoundments, the production which will ensue should prove very enlightening. This refuge should have little trouble in meeting the long range objectives of 2,000 ducks annually on 1,200 acres of impounded marsh and water.

Goose production more than doubled this year indicating that a breeding population is finally gaining a foothold on the refuge. Past Canada goose production is summarized below.

Goose Production Summary
1961 - 1966

	<u>'61</u>	<u>'62</u>	<u>'63</u>	<u>'64</u>	<u>'65</u>	<u>'66</u>
No. Nesting Pairs	0	1	3	0	4	5
No. Non Nesting Birds	-	-	-	-	-	3
No. Young Hatched	0	2	7	0	8	14
No. Unsuccessful Nests	0	0	0	0	2	1
No. to Flight Stage	0	0	0	0	5	12

Records state that predation was the probable cause of rearing failure in 1962 and 1963. The 1964 NR notes that although many reports were received to the contrary, no goose production was confirmed by refuge personnel. Nest failure in 1965 was the result of person (s) unknown splattering the eggs of one

ERIE NATIONAL WILDLIFE REFUGE

CRAWFORD COUNTY, PENNSYLVANIA

U. S. DEPARTMENT OF THE INTERIOR

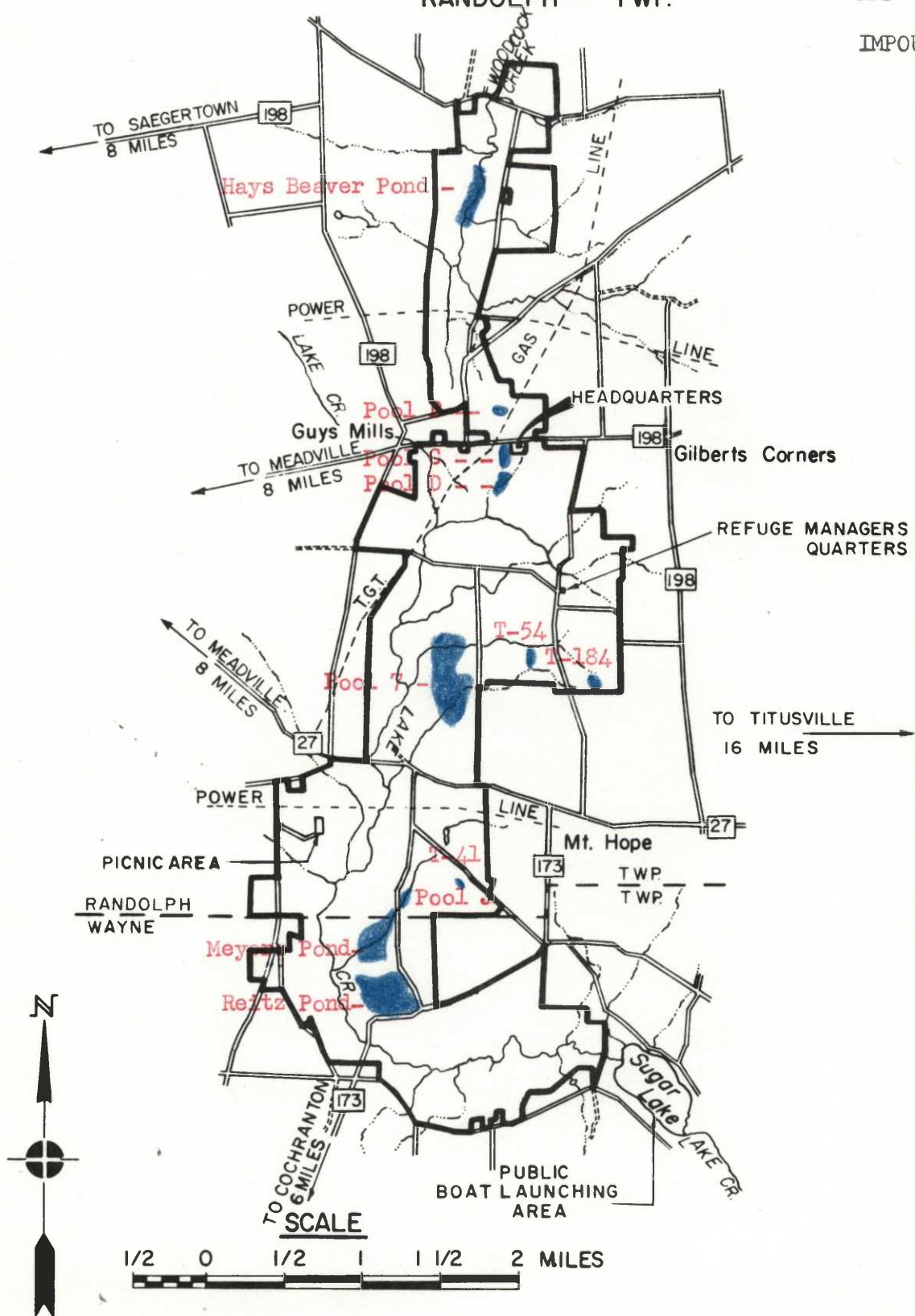
BUREAU OF SPORT FISHERIES AND WILDLIFE

RICHMOND
RANDOLPH

TWP.
TWP.

MAP B

IMPOUNDMENTS



nest against a tree and a second nest on Lake Creek being flooded out.

In 1966 one nest of 6 fertile eggs containing well formed embryos was abandoned about mid-May for reasons unknown. Two gosling from a brood of six were lost after being reportedly stoned and/or separated from their brood.

All of the above goose production has occurred on Management Units 4 and 5, our proposed goose management area. Reitz Pond on Tract 11 (Map B) has been the principal nesting and rearing area. All of the production and production attempts in 1963 and 1965 plus most of that in 1966 took place on or adjacent to this pond.

Deviations from this pattern occurred in 1962 and 1966. In the former year a small pond on Tract 41 was used. More recently nesting areas have included the Pool J site and Sanner farm pond at the south end of the refuge opposite Tract 187; in this latter instance the brood was brought off on adjacent private property but raised on the refuge.

An additional three geese, presumably subadults spent the summer on Reitz Pond. Several other geese periodically flew back and forth between Pools B and C at Headquarters and impoundments on State Game Lands 69, one mile to the east of Erie Refuge. Goose production on this State area was supplemented by wing-clipped pairs and reportedly, slightly exceeded that on Erie Refuge.

Construction of Pool 9 water control facilities, as scheduled to begin in F. Y. 1967, should prove of great value to our goose management program. These facilities will be utilized to manage an 135-acre impoundment located within a half a mile of the favored goose nesting areas.

2. Other Water Birds. Great blue herons and green herons appeared to be quite numerous this year. Occasional sightings of American bittern, ring-billed gull, herring gull, black tern and common egret were made by refuge personnel. During the spring migration common loons, horned grebes, pied-billed grebes, red-breasted mergansers, and old squaw made extensive use of nearby Sugar Lake. Young American bitterns were noted between headquarters and Pool C for the third consecutive year.
3. Shore Birds. Species observed this year included common snipe, woodcock, killdeer, greater yellowlegs, pectoral sandpiper, and solitary sandpiper. Observed production of

this group included killdeer and solitary sandpiper. Woodcock and snipe are known to breed on the area also.

4. Mourning Dove. Populations of doves appear to be comparable with those of recent years. Scattered sightings of the species were recorded throughout the winter months.

A Call-Count Survey conducted in early June provided the basis for the estimated 125 doves produced on the refuge in 1966. Sightings of pairs and small groups were common throughout the summer.

The population peaked during the last two weeks in August at which time about 200 of these birds feed heavily in a freshly mown wheat field near headquarters.

- B. Upland Game Birds. Resident upland game birds include pheasant, bobwhite and ruffed grouse.

The refuge pheasant population decreased this year due to curtailment in stocking by the State Game Commission. Spring stocking is being phased out by the Commission. Fall stocking immediately pre-season and in season was curtailed in accordance with Bureau policy. Approximately 50 pheasants were accidentally released on the Game Bird Hunting Area about a week before the opening of the hunting season.

Natural production and influx from stocking around the periphery of the refuge added to the refuge population. A total of nine pheasant broods were recorded this year. Of special interest was a newly hatched brood seen on September 9.

No noticeable change occurred in the ruffed grouse population. The birds remain in good numbers.

Bobwhite continue at a very low population level. Infrequent sightings indicate that remnants of Game Commission releases of this species are barely hanging on.

Four turkeys spent several days on and in the vicinity of the southwest portion on Unit 4 during the latter half of September.

On October 4, 1966 the Game Commission released six, pen reared turkeys on the southeast corner of Unit 2. These birds were last seen about one mile north of the point of release.

- C. Big Game Animals. Winter survival of the white-tailed deer population appeared to be excellent. Approximately 140 deer entered the breeding season this year as compared to 120 last year. Production was very good with a large majority of does producing twin fawns.

There were no sightings nor evidence of black bear this year.

- D. Fur Animals. Predators. Rodents and other Mannals. Beaver populations have increased with the protection afforded to them during the past two years and have increased the flooded wetland acreage on the refuge somewhat with the addition of new beaver dams and the rebuilding of old ones.

Muskrat and mink populations continue to be limited by the low water levels and stream flows experienced during summer and the fluctuating levels that occur during fall and early winter.

Both red and grey foxes appear to be relatively numerous on the refuge, as has been the case during the past several years. Hunting for fox during the "off" season accounts for the removal of a few individuals but not to a significant degree.

Problems during our preseason waterfowl banding efforts brought out the fact that raccoon population on the refuge remains at a high level. Skunks and opossum appear to be increasing.

Initial observations strongly indicate that attainment of refuge waterfowl production objectives will be dependent, in part, on the inclusion and success of an animal control program.

The diurnal habits of cottontail rabbits brought the common complaint of "very few rabbits around" although their tracks abound after a fresh snow.

- E. Predaceous Birds. Hawks are the most commonly observed raptors on the refuge, particularly during periods of migration. Red-tailed and sparrow hawks continue to be the most commonly observed members of this group. Marsh hawks are common summer residents and became somewhat troublesome during dove trapping.

The most interesting observations were of a pair of ospreys that attempted to nest on the refuge. Robert C. Leberman of the Carnegie Museum indicated that prior to 1966 the last osprey

nesting attempt reported in western Pennsylvania occurred about 1910. No reports had ever been previously received by the Museum of osprey nesting in the northwestern corner of this State.

The 1966 nest on the refuge was afforded maximum protection from the time of its discovery in early May until mid-June at which time it was evident that this new nest, which was partially blown down in mid-May was not going to be repaired that season.

- F. Other Birds. Swallows and purple martins in western Pennsylvania and New York were hard hit by the lack of insects which accompanied the cool weather and late frosts in May. Reports of starving and dead birds were very common.

The spring warbler migration was quite noticeable during the first two weeks in May. Yellow warblers appeared to be the most numerous species.

Bluebirds were commonly seen during the summer period.

Formulation of an initial draft of the refuge birdlist was completed this year but will be held in abeyance pending more complete observations. We plan to enlist the help of "local ornithologists" in the near future to help formulize a more complete list.

An annual Christmas Bird Count was initiated this year in cooperation with Robert C. Leberman of the Carnegie Museum. Erie Refuge was the focal point of the count area. A tabulation of the December 21, 1966 count follows.

Noteworthy sightings were the large numbers of mourning doves and bluejays, plus the common grackle and the common snipe.

- G. Fish. Carp remained plentiful in Lake Creek, Reitz Pond and Meyers Pond. On several occasions the gold fish variety was observed swimming with groups of common carp. These goldfish are probably the survivors and or progeny of releases known to have been made prior to the establishment of the refuge. Pickerel, northern pike and muskellunge are also found in Lake Creek. A 53½ inch, 35 lb. muskellunge was caught in Sugar Lake this July. Large mouth bass and bluegills are found in limited numbers in streams and beaver ponds on the refuge.
- H. Reptiles. The garter, black and especially water snakes were commonly observed this summer.

Snapping turtles continue to be numerous. A trap baited with a can of sardines in Pool B accounted for seven "snappers" totaling 58 lbs. Four additional snappers totaling 34 lbs. were picked

CHRISTMAS BIRD COUNT

Guys Mills, Pennsylvania

December 21, 1967

Redhead	2	Horned Grebe	1
Lesser Scaup	1	Great Blue Heron	1
Common Goldeneye	5	Common Merganser	1
Cooper's Hawk	2 (1)	Red-tailed Hawk	20 (9)
Red-shouldered Hawk	1	Rough-legged Hawk	1
Sparrow Hawk	5	Ruffed Grouse	10 (2)
Ring-necked Pheasant	2 (2)	Common Snipe	1 (1)
Mourning Dove	113 (24)	Belted Kingfisher	6 (1)
Yellow-shafted Flicker	4	Pileated Woodpecker	2 (1)
Hairy Woodpecker	11 (3)	Downy Woodpecker	41 (14)
Horned Lark	51	Blue Jay	281 (52)
Common Crow	7 (4)	Black-capped Chickadee	280 (86)
Tufted Titmouse	17 (1)	White-breasted Nuthatch	37 (4)
Brown Creeper	1 (1)	Robin	91 (1)
Golden-crowned Kinglet	15 (1)	Cedar Waxwing	13
Sterling	297 (8)	House Sparrow	1071 (215)
Common Grackle	1 (1)	Cardinal	71 (19)
Purple Finch	4	Am. Goldfinch	21 (3)
Slate-colored Junco	80 (21)	Tree Sparrow	896 (149)
Field Sparrow	1	Song Sparrow	10 (2)
Snow Bunting	25		

Christmas Bird Count Total: 41 species, 3,499 birds.

Refuge Total: 26 species, 626 individuals.

(#) denotes number of birds seen on Erie Refuge.

up on gravel roads by refuge personnel. Cooperative "snapper trappers" under National Wildlife Permits accounted for 18 removals totaling 150 pounds. In summary, a total of 29 snapping turtles weighing 242 pounds were removed from refuge waters in 1966. The market price remained at 15¢ per pound (live weight).

- I. Disease. No diseases were reported this period.

ERIE NATIONAL WILDLIFE REFUGE

CRAWFORD COUNTY, PENNSYLVANIA

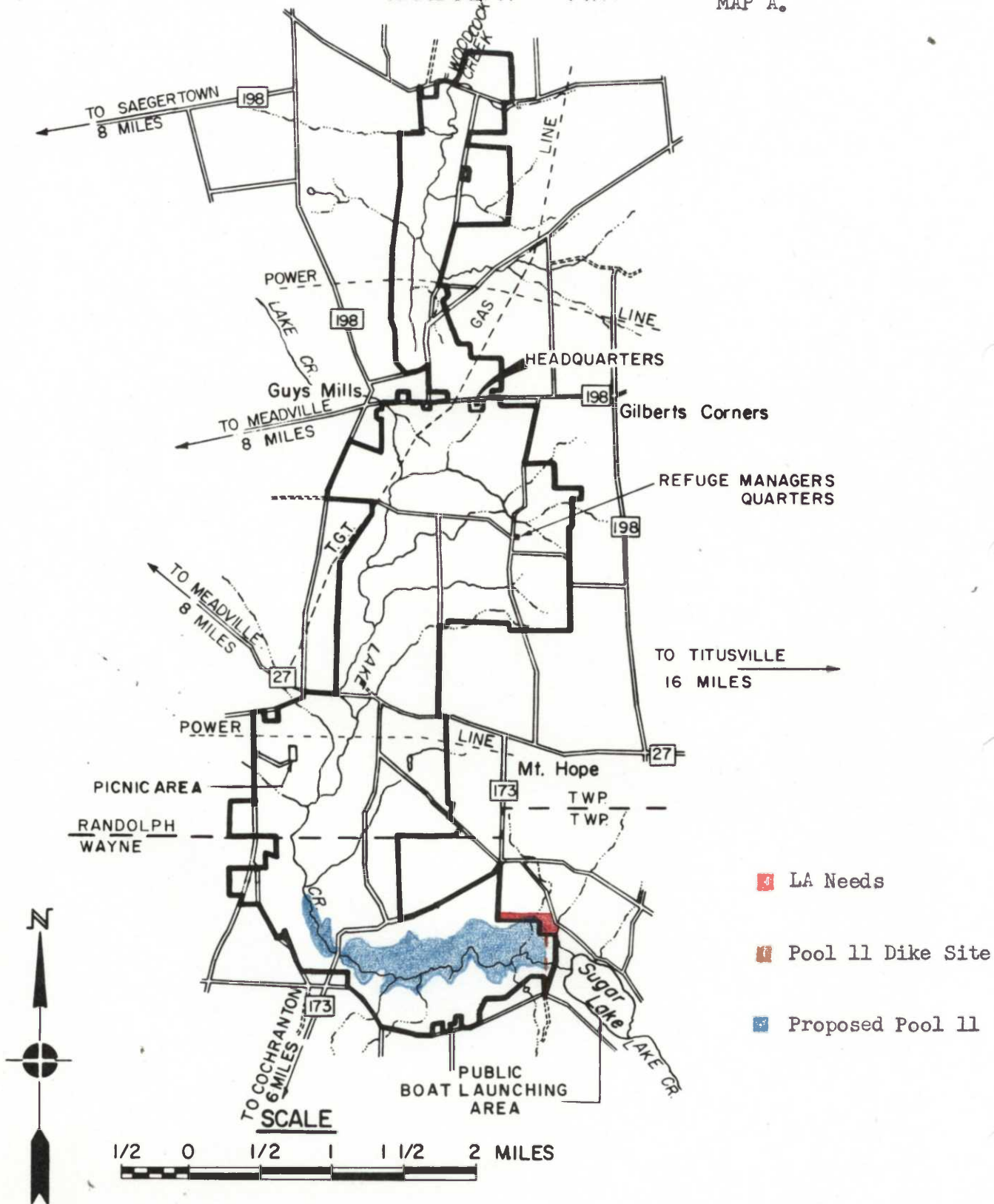
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BUREAU OF SPORT FISHERIES AND WILDLIFE

RICHMOND
RANDOLPH

TWP.
TWP.

MAP A.



III. REFUGE DEVELOPMENT AND MAINTENANCE

A. Physical Development.

1. Land Acquisition. As of December 31, 1966, case closure has been recorded on 99 tracts, totaling 4,830 acres, or about 96% of the total approved 5,046-acre project area. Options have been accepted on an additional 4 tracts, totaling approximately 137.7 acres. Only 2 ownerships remain to be negotiated to complete land acquisition on the Sugar Lake Unit. Condemnation will probably be necessary to complete this acquisition phase.

Acquisition of an additional 20 acres (in actuality probably 35 acres due to the land ownership pattern) outside our present boundary will be necessary to tie the northern terminus of the proposed Pool 11 dike into high ground above Sugar Lake inlet, as depicted on Map A on the following page.

A reshuffling of priorities in favor of the Coast-o-Maine Refuge and additions to other refuges delayed the submittal of the proposed Seneca Division to the Migratory Bird Conservation Commission beyond this reporting period.

This project proposal is scheduled to be considered by the M.B.C.C. on February 7, 1967. The Seneca Division would, in effect, double the effectiveness of the refuge program for waterfowl and people in northwestern Pennsylvania.

2. Water Facilities. Major development was initiated this year with the construction of Pool 7 water management facilities on Unit 3. Completion of these facilities next spring will create 60 acres of high quality duck habitat.

Engineering field work was completed for the Pool 9 facilities. The contract for this job will be let next spring. Development of this site will provide an 135-acre impoundment essential to the success of both our goose and duck management programs.

Two small upland ponds were created this year, one on Tract 184 and one on Tract 54 of Unit 3. These ponds average about 2 acres each in size. Both structures were completed under force account with the Soil Conservation Service supplying engineering assistance. Seeding data are furnished on Form NR-7, appended.

Two hundred fifty feet of low level dike were constructed in

May along the north shore of Pool C parallel to State Route 198 to prevent loss of water into the road ditch.

Mucking of dike toes and exposed gravelly shoreline in Pools C and D was only partially successful in arresting ground percolation. Gravelly soils underlay these pools. Water levels are dependent upon the seasonal ground water table and intermittent runoff.

3. Roads and Trails. Maintenance of public roads through the refuge is performed by the State and townships on their respective easements. Three wooden bridges on gravel roads leading to Pool 7 were renovated by the Pool 7 contractor after heavy equipment use. Granular calcium was applied by the contractor as an anti-dust measure to public roads used by the contractor, only after encouragement by the refuge manager. Maintenance of roads and bridges used by contractors should be included in future contracts in order to preserve neighbor and community relations.

A total of 3250 feet of boundary trail clearing on Tracts 123 and 17 was completed under informal contract. After the erection of a new boundary fence and installation of a culvert, these areas were limed, fertilized, seeded and mulched. Seeding rates and mixtures are appended on Form NR-7.

In June about 2,500 feet of unimproved roads to Pools C and D were graveled under informal contract to provide all-weather access to these water control facilities.

A 300-foot extension to the picnic area parking lot was completed in May to provide parking for the picnic area extension which was completed last period. Parking facilities (15-car capacity) were also developed adjacent to the Woodcock Creek public fishing area to provide safe off road parking for fishermen.

The parking areas at headquarters and the picnic area plus the picnic area access road were treated with a 35% calcium chloride solution as an anti-dust measure.

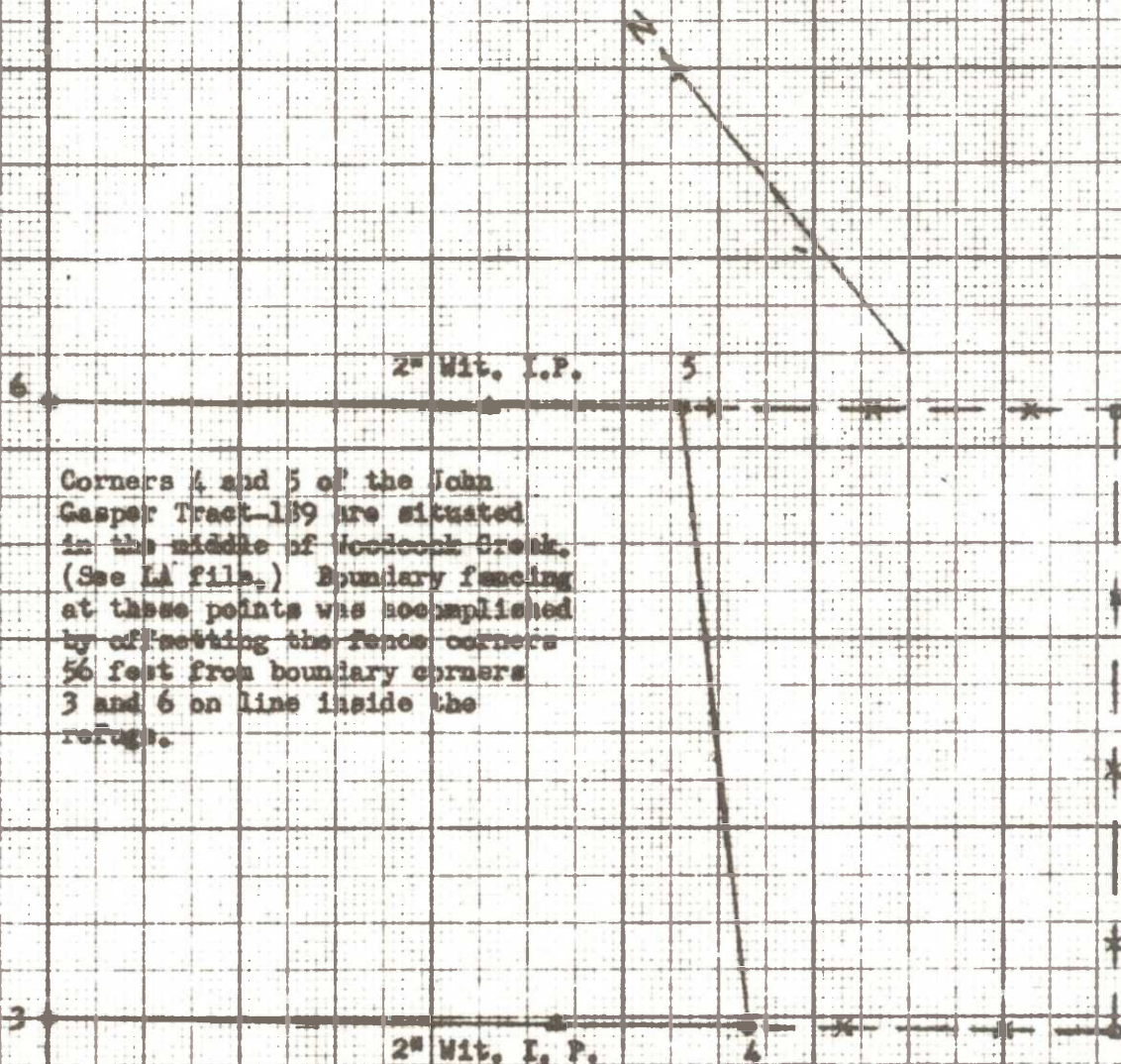
4. Fencing and Posting. New fence was erected along 2 miles of boundary during 1966. Fencing completed to date totals 16 miles. Approximately 3 miles of exterior fencing remain to be erected. Boundary fencing is essentially completed except for lands not yet acquired. Maintenance of erected fence was minimal this year. No deliberate breakage occurred and only slight damage from snow and other causes necessitated repairs. See following diagram for deviation in boundary fencing.

EUGENE DIETZGEN CO.
IN U.S.A.

NO. 341-20 DIETZGEN GF 24 PAPER
20 x 20 PER IN.

John Gasper Tract 189
Boundary Fencing

May 1966



2/6/67 DTC

ERIE NATIONAL WILDLIFE REFUGE

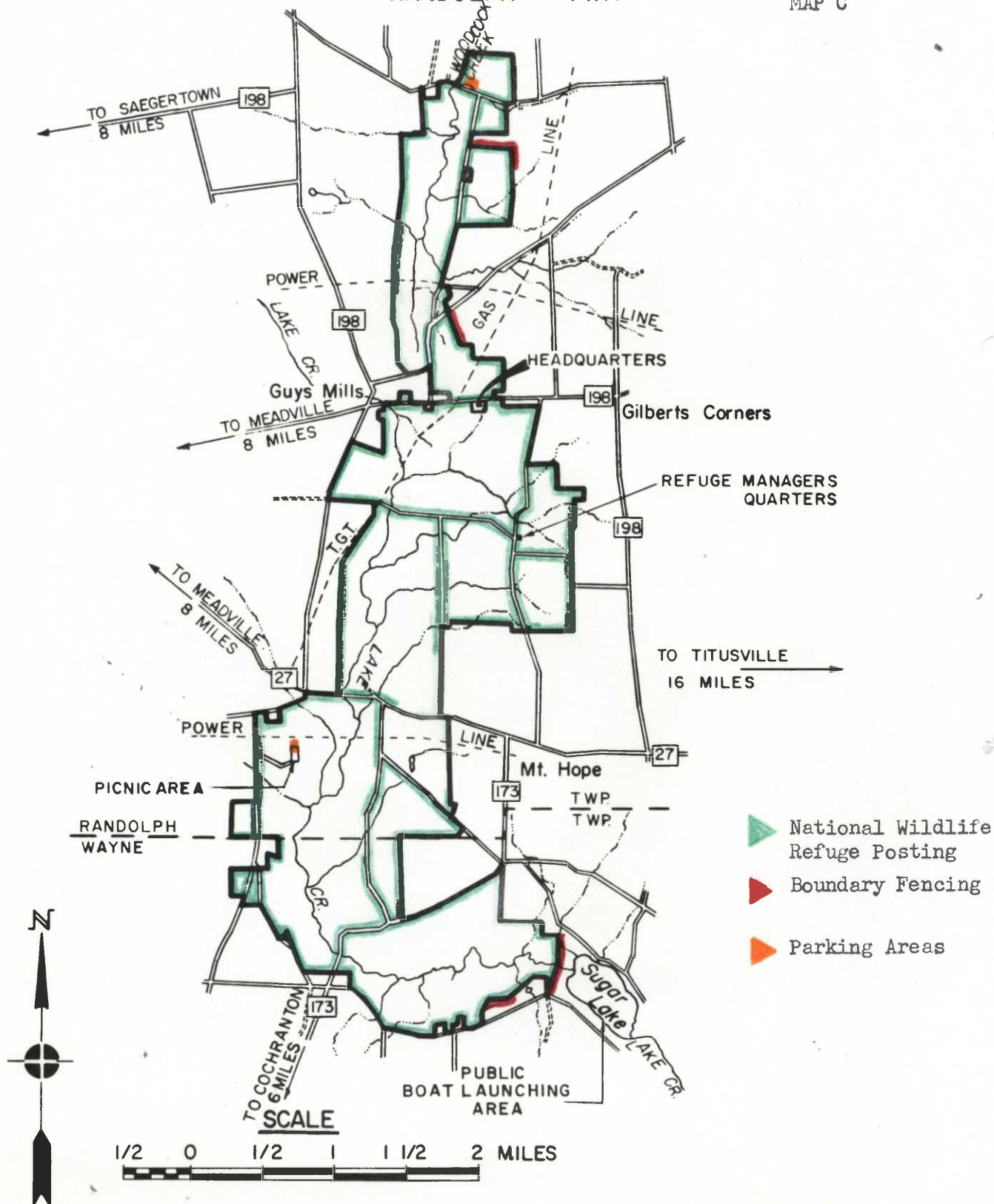
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RICHMOND TWP.
RANDOLPH TWP.

MAP C



Erection of National Wildlife Refuge boundary signs was initiated on January 5, 1966. A total of 43 miles of refuge exterior boundary and refuge lands bordering public roads was posted during the period (Map C). Posting was spaced at one tenth mile intervals along roads and 300-foot intervals through fields and woods. Sign posts along public roads were erected just beyond the edge of the road right-of-way, usually 26 feet from the center line. All property corners and major deviations in boundary were double posted to reflect the change in direction of property lines and to protect corner pipes and monuments.

Public Fishing Area signs were erected to identify the four public fishing areas. Closed Area signs were used to define the limits of the fishing areas. These latter signs will be replaced by signs denoting no fishing beyond this point.

Public Hunting signs were posted along 15 miles of boundary and public roads to designate the "Posted Game Bird Hunting Area". In addition Pennsylvania Game Commission "Safety Zone" signs were used to identify the prescribed 150-yard radius, safety zone around refuge buildings during the hunting season.

An entrance sign was erected at the south entrance to the refuge on Route 173. Following acquisition of appropriate tracts, signs will be erected at three additional sites where main public highways enter/leave refuge lands. These signs were constructed at the Iroquois Refuge sign shop. Prior to erection stain was applied and the routed letters were painted with "Codit", a reflectorized liquid, which greatly enhances visibility at night.

The practice of removing the picnic area directional signs in the fall, storing them for the winter, and rehangng them in the spring, was continued in an effort to minimize maintenance and replacement costs. In spite of these attempts one such sign was reported missing shortly after hanging it in May.

New signs were fabricated and erected in connection with fee collection at the picnic area. These signs are depicted in the appended photographs. Golden Passport and Smokey Bear posters were also erected at key locations on the refuge.

5. Buildings and Structures. Two permanent quarters were acquired this year. These will replace the temporary quarters presently occupied by the Manager and Assistant Manager. Renovation of one of these residences, Q-176, was initiated in December in preparation for occupancy by the Assistant Manager.

Prior to occupancy, this residence will need new flooring, interior painting, and associated repairs. The new manager's quarters is still occupied by the former owner pending his finding a suitable replacement home. Quarters rental surveys were completed for the occupancy of these recently acquired facilities.

Maintenance to the office this year included interior and exterior painting and replacing some of the rear clapboards. Maintenance of interim residences, Q-87 and Q-15, was held to a minimum.

Mowing of the headquarters and picnic area lawns and picnic area trash disposal were carried out by informal contract.

Building safety inspections were completed at prescribed intervals.

6. Equipment. A new 1966 Plymouth station wagon arrived this spring replacing the 1962 Studebaker Mark that was sidelined as unsafe in 1965. This new wagon was later equipped with a new Motorola transceiver.

The 1965 Jeep cab was replaced by one offering more window area, hence improved visibility and safety in operation. The Jeep was also equipped with an electrically operated Meyers snow plow.

Preventative maintenance, safety inspections and repairs to vehicles and equipment were completed at prescribed intervals.

Excess property disposal included a metal lathe, a dragline bucket and an electric drill.

7. J.C.C.C. The proposed Erie Refuge Job Corps Center does not appear to be forthcoming in the near future. Emphasis has apparently been shifted toward improving existing centers.
8. Bench Marks. Elevation control data as compiled by the Division of Engineering are appended.

ERIE NATIONAL WILDLIFE REFUGE

CRAWFORD COUNTY, PENNSYLVANIA

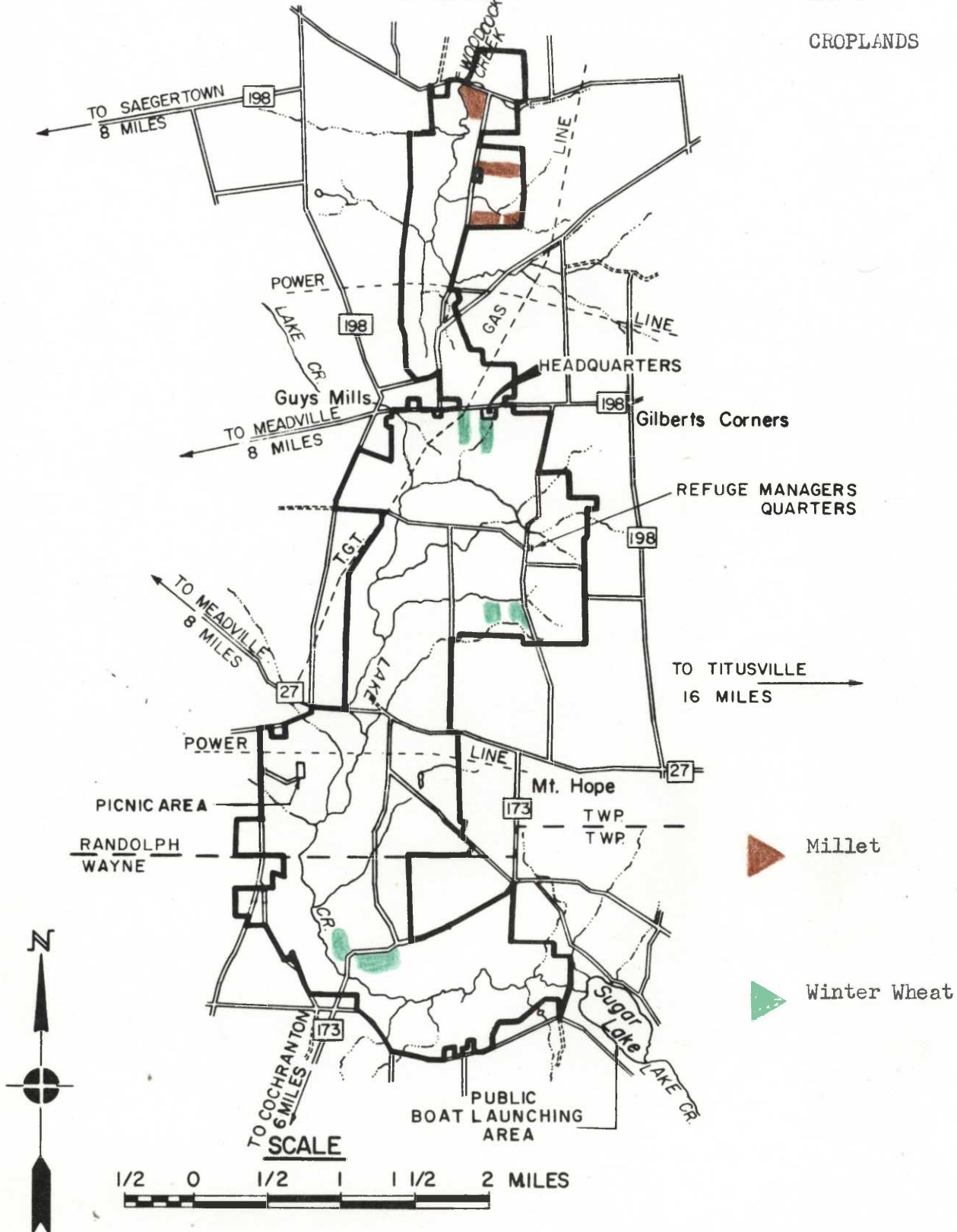
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BUREAU OF SPORT FISHERIES AND WILDLIFE

RICHMOND TWP.
RANDOLPH TWP.

MAP D

CROPLANDS



B. Plantings.

1. Aquatic and Marsh Plants. None.
2. Trees and Shrubs. None.
3. Upland Herbaceous Plants. Data for this reporting category are summarized on Form NR-7, appended.

Dolomitic lime and 10-20-20 fertilizer at 2 tons/acre and 200 pounds/acre, respectively, were applied to the dikes and boundary right-of-ways before seeding. In addition dike seedings were mulched with old hay.

Seeding at the picnic area extension was a reseeding and did not require additional lime and fertilizer.

4. Cultivated Crops. Farming activities were expanded this year for the purpose of soil rehabilitation in preparation for cooperative farming, goose management and nesting cover improvement. Extensive applications of lime and fertilizer are needed to rebuild soil fertility and pH before productive cropping can be carried on.

Cover crops of Japanese millet and winter wheat were planted on 142 acres (Map D). Most of this acreage will be seeded to grass/legume mixtures next period.

Dry soil conditions and late receipt of F. Y. '67 operating funds delayed seeding of all crops by about two weeks. An early frost in September killed 8 acres of buckwheat which was flowering and necessitated the reseeding of this field to winter wheat.

Utilization of those cover crops by wildlife was light. A small flock of geese sparingly utilized the wheat field near Reitz Pond for browse in late October.

C. Collections and Receipts. None.

- D. Control of Vegetation. No chemical control of vegetation was required this period.

Mowing was carried out on 169 acres of reverting grasslands to facilitate farming operations and deter succession to brush.

E. Planned Burning. None.

- F. Fires. The usual disposal of slab piles, debris and building sites by burning was continued.

Two small fires of uncertain origin occurred this period. The first burned a 6'x8' patch of weeds on July 4 at Tract 31 before being extinguished by alert neighbors. An exploding firecracker tossed from a passing vehicle is suspected to have been the cause.

The second fire occurred on December 12 in the barn on Tract 7 and was extinguished by the local volunteer fire company. Damage to this old, excess building, the removal of which was pending receipt of disposal authority, was negligible.

IV. RESOURCE MANAGEMENT

- A. Grazing. Eight (8) special use permits were issued covering a maximum of 955 AUM's on 519 acres of grassland. Revenues received totaled \$470.75 for the 768 AUM's actually used. Available forage was limited by the early season drought.

A critical re-evaluation of objectives, accomplishments and desirability of continuing this form of management at this station is needed. Preliminary observations are stated below.

Our principal objectives of brush and weed control are not being achieved and will not be achieved without overgrazing. Grazing actually promotes the growth of woody plants, thistle and other unpalatable weeds by the elimination of grass competition.

Grazing at this station has also served to speed up the depletion of soil nutrients on our idle lands. Refuge receipts have been about the only benefit we have received in this program and these are, at the most, short term benefits. When administrative and soils rehabilitation costs are considered, receipts at the rate of 50¢/AUM leaves us in the red on a long term basis.

Another factor, the one which should receive highest consideration, is that grazing increases the vulnerability of nesting waterfowl to predation.

On the basis of the foregoing serious consideration will be given to realigning the grassland management program to eliminate grazing in fields closely associated with upland ponds and major impoundments and to phase out grazing where grasslands management objectives can be better achieved by more favorable methods.

- B. Haying. Six (6) special use permits were issued covering haying on 55.5 acres from which \$194. in revenues were realized.

An additional 47 acres of hay were harvested under informal contract for use as mulch on refuge soil stabilization projects.

Efforts are being extended through the local Soil Conservation Office to increase the market for late season, refuge hay (mulch). Haying is a more effective, economical and desirable form of grassland management than grazing.

- C. Fur Harvest. Trapping, which in prior years had been permitted under "free use" permit, was discontinued following the posting of the refuge with "blue goose" signs and pending the completion of the Fur Management Plan. Initial inquiries reflect that a share trapping program will probably be feasible next year.
- D. Timber Removal. None this period.
- E. Commerical Fishing. Not applicable.
- F. Other Uses. Excess building disposal was continued during this period. Twenty-three buildings were sold or salvaged. Receipts totaled \$683.51.

V. FIELD INVESTIGATIONS OR APPLIED RESEARCH

A. Progress Report.

1. Waterfowl Banding. A total of 76 ducks were banded during the period 7/23 - 8/29. These included 56 wood ducks, 17 mallards, and 3 blue-winged teal. Bait trapping methods were used in capturing these birds at three locations: Hay's beaver dam - Unit 1, Pool B - Unit 1, and Reitz pond - Unit 4. Raccoon took two ducklings from our traps. A combination of manpower and time limitations, low water levels, and raccoon interference accounted for the low numbers of waterfowl banded this year.
2. Dove Banding. One hundred fifty-six (156) mourning doves were banded this year as compared to 299 in 1965 and 102 in 1964. Fifty-eight percent (58%) of the birds banded were immature as compared with 86% in 1965 and 77% in 1964.

Banding efforts were hindered somewhat by the periodic patrols of Coopers and marsh hawks. These raptors accounted for 8 known kills and forced us to close our traps a day ahead of schedule.

3. Misc. Banding. Cooperative song bird banding and the banding of incidental species was discontinued in accordance with revised Bureau policy guidelines recently published by Patuxent in Bird Banding Notes.
4. Artificial Nesting Devises. Twenty-five (25) wood duck nesting boxes were erected in February, bringing the total to 53.

Field checks in May and July revealed activity in 21 of the boxes, 18 of which were and/or had been occupied by tree swallows, 3 by wood ducks and 2 by hooded mergansers.

5. Vegetative Transects. Establishment of vegetative transects on developed and proposed pool sites was postponed due to the lack of a Student Assistant services. Hopefully this phase of our field investigations will be initiated next year.

VI. PUBLIC RELATIONS

- A. Recreational Uses. The total number of visits to this refuge this period was 7,600, representing a decrease of 6,655 or 53% from 1965.

This decrease in public use is closely correlated with (1) the charging of Land and Water Conservation Fund entry fees at the picnic area and (2) the initiation of a refuge controlled hunting program.

Prior to 1966 public use on the refuge had not been regulated by special regulations. In 1966 boundary posting was accomplished and all activities became prohibited unless permitted by refuge regulations. In addition the picnic area was designated as a Land and Water Conservation Fund entry fee collection area.

Charging an entry fee at the picnic area accounted for the greatest decrease in visitor use. Picnic area use dropped from the 1965 high of 10,500 to 2,000 actual picnickers in 1966, a decrease of more than 80%. This decrease is primarily due to local opposition. However, the 1965 level of use will probably be regained by 1969 or 1970, after the bugs and newness of the charge system are smoothed out.

Decreases in hunter use occurred in the upland game and other (woodchuck) categories primarily. Overall hunter use decreased by somewhat less than 50%. This decrease is in line with that which was anticipated when one considers that 60% of the former hunting area was closed. Again, newness of the program deterred some former use which can be expected to resume as the refuge program becomes more familiar to the sportsman.

Miscellaneous visits other than picnicking increased more than 10 times that recorded in 1965. Sightseeing was the principal area of increase, rising from 200 visitor days in 1965 to 3,300 in 1966. Curiosity in connection with the picnic area entry fee set up and Pool 7 construction activities accounted for the majority of use in this category.

As mentioned in the above discussion the Erie Refuge Picnic area was designated as a Land and Water Conservation Fund entry fee collection site in 1966. Visitors had the option of purchasing the \$7.00 Golden Passport, the daily permit - \$1.00 per car, or 50¢ per person on foot or in a commercial vehicle.

Serially numbered envelopes with corresponding tear off, receipt tabs were available at the entrance to the picnic area parking lot. Nearby signs explained the fee system and procedures to follow to use the area. (See appended photographs.)

A total of \$332.95 in entry fees was collected at the picnic area during the fee collection period, May 28 through September 15. Capital investment in signs, labor, road widening and depository totaled \$525. Operational costs came to \$109. During this first year of charging, the cost of collection exceeded the total receipts by \$301.05, or 47.5%.

Periodic field checks, receipts and weekly traffic counter tabulations indicated 50 - 75% compliance on the part of the users in the payment of entry fees.

Suggested improvements include a seasonal area permit and charging entry fees during the entire picnic user season, May 28 - October 15, or year round.

- B. Refuge Visistors. On April 6 Messrs. Garner (C.O.) and Dalley (R.O.) of the Division of Engineering inspected refuge facilities and development prospects.

Messrs. Anderson (Eng.) and Steel (Refuges) met with refuge personnel and Mr. Lunetta of the State Department of Forest and Waters on April 14 to discuss State criteria in relation to Bureau development and engineering design.

Assistant Regional Refuge Supervisor Radway completed his annual inspection on September 12 and 13.

Various other Bureau personnel from the Divisions of Realty and Engineering were temporarily detailed to this station on land acquisition and development matters. GMA E.J. Baker and State game, fish and forestry personnel periodically visited the refuge on mutual matters.

Mr. Halver Getchell, reporter for the "Meadville Tribune" made periodic visits to the refuge in connection with newsworthy items of public interest. The Tribune's support of our program and Mr. Getchell's accurate reporting have proven highly beneficial in our public relations program.

Visits from the general public are increasing. Inquiries regarding economic uses, building disposal, hunting, fishing, employment, land acquisition, and development progress were most numerous.

C. Refuge Participation. Refuge personnel attended and/or participated in the following meeting and speaking engagements.

<u>Date</u>	<u>Name</u>	<u>Organization</u>	<u>Attendance</u>
1/27	Coggeshall, Granda	Crawford Co. Sportsman Fed.	28
2/24	Coggeshall	Guys Mills Cub Scout Banquet	150
3/26	Coggeshall	First Presbyterian Church of Meadville	25
4/2	Coggeshall, Vendel, Granda	Annual Spartansburg Conservation Club Banquet	200
4/18	Coggeshall	Cochranton Rotary	18
5/19	Coggeshall	Saegertown Lions	15
5/27	Coggeshall	Agricultural Interest Council	20
6/30	Vendel	Girl Scout Day Camp	50
7/4	Coggeshall, Vendel, Granda	Guys Mills 4th of July Parade	3,500
9/8	Coggeshall	Black Ash Sportsman	12
9/15	Coggeshall	SCS Outdoor Recreation Potential Planning Workshop	15
9/26	Coggeshall	Co. Sportsman Fed.	18
10/15	Vendel	Cochranton Lions Club	16
10/24	Coggeshall, Vendel, Granda	Co. Sportsman Fed.	30

<u>Date</u>	<u>Name</u>	<u>Organization</u>	<u>Attendance</u>
10/27	Coggeshall	SCS Outdoor Recreation Potential Planning Workshop	15
10/28	Coggeshall	Clarion State Teachers College Conservation Class	8
11/09	Vendel	Cochrannton Boy Scouts	12
11/14	Coggeshall	Cambridge Springs Rotary	28
11/15	Coggeshall	Franklin Rotary Club	15

The Guys Mills Boy Scouts cooperated with refuge personnel in the clean up of refuge roadsides in recognition of the National Wildlife Week theme, "Retaining Natural Beauty".

Refuge Manager Coggeshall served as Community Chairman for the Guys Mills area in the 1966 Boy Scouts of America Sustaining Membership Drive. The community goal was exceeded by more than 100%.

- D. Hunting. This year marks the beginning of a refuge controlled hunting program at this station.

Following the formulation and approval of the Hunting and Fishing Plan, special regulations were established opening the refuge to hunting and governing that hunting for the 1966-67 season.

A press release announcing the hunting program was distributed to western Pennsylvania and eastern Ohio newspapers. Public hunting information/map leaflets (sample next page) were prepared and distributed to local business, sportsmen clubs, Meadville sporting goods stores, the County Treasurer's office, plus State and Federal fish and game personnel. A total of 234 inquiries were answered by mail alone.

Seasons and bag limits generally followed State regulations as appended, except as noted below.

Overall acceptance of the program was fair. No major objections were raised. Minor changes in the program and a few more seasons of experience for the sportsmen should smooth most ruffled feathers.

Hunting of designated species of migratory game birds, upland game and unprotected species was permitted on 1,856-acre "Game Bird Hunting Area", or 37% of the refuge. Deer hunting was permitted on the entire refuge, except Safety Zones - 4,920 acres or 99% of the refuge. A summary of each type of hunting follows:

1. Migratory Game Birds. Hunting pressure on doves, woodcock, snipe, ducks, and coot was light and success fair to poor. The open season for ducks and coots closed November 26 to avoid conflict with the more popular pursuit of deer. NR forms 1c, 2 and 6 present hunter use and removal data.

Geese were protected. Very little fall migrational use occurs at the present time. Hunting of this species would be limited to the small breeding flock and directly conflict with goose production objectives.

2. Upland Game. Pheasant hunting pressure decreased somewhat this year due to lower numbers of birds. Hunting success also declined.

Rabbit hunting was moderate with good success. Hunters welcomed the added week at the beginning of January.

Squirrel populations are low. Hunting of fox and grey squirrel was light with poor success.

The late season on ruffed grouse was also extended by one week in January. Hunting pressure on this elusive quarry increased to a moderate level. Success was fair.

3. Deer. Rainy weather on the opening day of buck season and during the two-day doe season contributed to a decreased hunting take. Most deer taken appeared to be in excellent physical condition.

Archery hunting increased by 50% over 1965 with hunting pressure remaining at a light level. No kills were reported on the refuge during the bow season.

4. Unprotected Species. Hunting of red squirrels, raccoons, woodchucks, skunks, opossum and foxes was permitted on the Game Bird Hunting Area during the period October 15, 1966 through February 28, 1967, except on Sundays.

ERIE NATIONAL WILDLIFE REFUGE

CRAWFORD COUNTY, PENNSYLVANIA

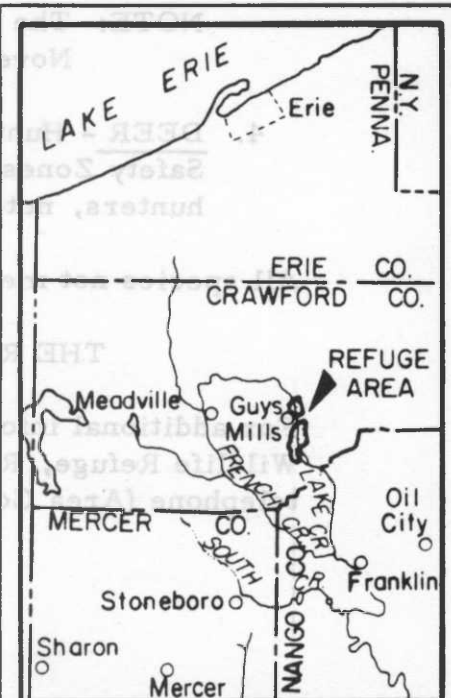
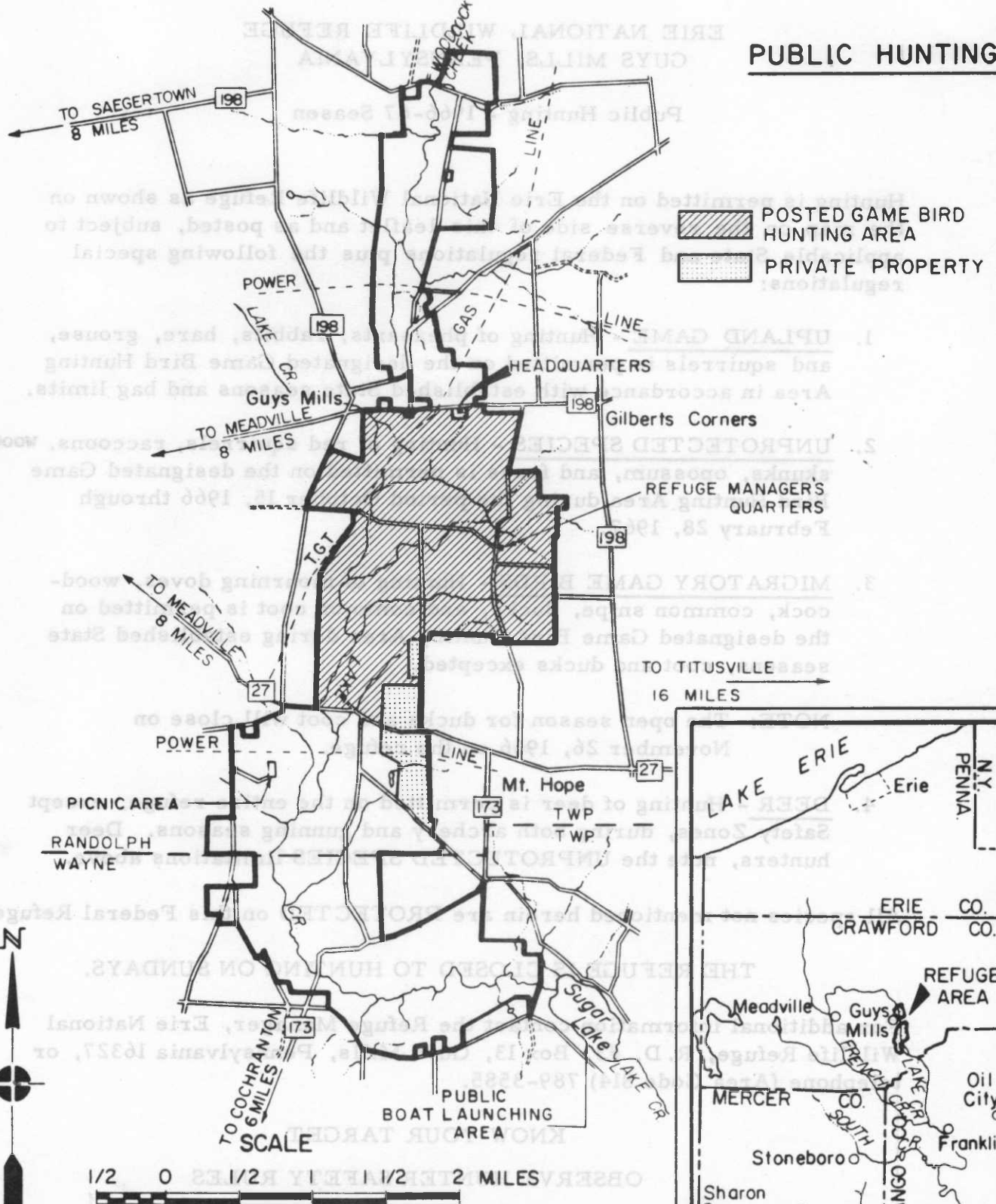
U. S. DEPARTMENT OF THE INTERIOR

BUREAU OF SPORT FISHERIES AND WILDLIFE

RICHMOND
RANDOLPH

TWP.
TWP.

PUBLIC HUNTING



U. S. DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
BUREAU OF SPORT FISHERIES AND WILDLIFE

ERIE NATIONAL WILDLIFE REFUGE
GUYS MILLS, PENNSYLVANIA

Public Hunting - 1966-67 Season

Hunting is permitted on the Erie National Wildlife Refuge as shown on the map on the reverse side of this leaflet and as posted, subject to applicable State and Federal regulations plus the following special regulations:

1. UPLAND GAME - Hunting of pheasants, rabbits, hare, grouse, and squirrels is permitted on the designated Game Bird Hunting Area in accordance with established State seasons and bag limits.
2. UNPROTECTED SPECIES - Hunting of red squirrels, raccoons, woodchucks, skunks, opossum, and foxes is permitted on the designated Game Bird Hunting Area during the period October 15, 1966 through February 28, 1967.
3. MIGRATORY GAME BIRDS - Hunting of mourning doves, woodcock, common snipe, ducks, and common coot is permitted on the designated Game Bird Hunting Area during established State seasons, coot and ducks excepted.

NOTE: The open season for ducks and coot will close on November 26, 1966 on the refuge.

4. DEER - Hunting of deer is permitted on the entire refuge, except Safety Zones, during both archery and gunning seasons. Deer hunters, note the UNPROTECTED SPECIES limitations above.

All species not mentioned herein are PROTECTED on this Federal Refuge.

THE REFUGE IS CLOSED TO HUNTING ON SUNDAYS.

For additional information contact the Refuge Manager, Erie National Wildlife Refuge, R.D. #3, Box 13, Guys Mills, Pennsylvania 16327, or telephone (Area Code 814) 789-3585.

KNOW YOUR TARGET
OBSERVE HUNTER SAFETY RULES

**1966 PENNSYLVANIA OPEN SEASONS FOR WATERFOWL AND
OTHER MIGRATORY GAME BIRDS UNDER FEDERAL AND STATE REGULATIONS**

Species	Open Seasons		Daily Bag Limits	Maximum Possession Limits	Shooting Hours
	First Day	Last Day			
DOVES	Sept. 1	Nov. 9	12	24	Sept. 1 through Oct. 29—1:00 P.M., EDT, to Sunset; following days—12 Noon, EST, to Sunset.
RAILS & GALLINULES	Sept. 1	Nov. 9	15†	30†	} Oct. 29—9:00 A.M., EDT, to Sunset. Other Days—Sunrise to Sunset.
WILSON'S or JACKSNIPES	Oct. 1	Nov. 19	8	16	
WOODCOCK	Oct. 15	Dec. 3	5	10	
† Singly or in the aggregate of species.					
DUCKS	Oct. 8	Oct. 15	3*	6*	} Oct. 1, 8 & Nov. 4 (OPENING DAYS)—One-half hour before Sunrise to Sunset. Oct. 29—9:00 A.M., EDT, to Sunset. OTHER DAYS—One-half hour before Sunrise to Sunset, EXCEPT Controlled Shooting Sections of Pymatuning Waterfowl Area—One-half hour before Sunrise to 12:00 O'clock Noon (prevailing time) on Monday, Wednesday, Friday & Saturday, beginning Oct. 8, 1966.
COOTS	AND		10	20	
MERGANSERS	Nov. 4	Dec. 15	5**	10**	
GEESE	Oct. 1***	Dec. 9	2****	4	
BRANT	Oct. 1	Dec. 9	6	6	
EXCEPTIONS:	* Daily Bag Limit of 3 ducks may not include more than:—2 wood ducks; 2 canvasbacks. Maximum Possession Limit may not include more than:—2 wood ducks; 4 canvasbacks. Scaup and ring-necked duck bonus, bag of two and possession limit of four—November 15-December 15. ** Not more than 1 hooded merganser daily, or 2 in possession. *** Crawford and Erie Counties, including Pymatuning Waterfowl Area—Oct. 8. **** Daily Bag Limit in Crawford County—1 Canada goose.				

ON THE OPENING DAY OF SMALL GAME SEASON, SATURDAY, OCTOBER 29, 1966, IT IS UNLAWFUL TO HUNT ANY WILD BIRD OR ANIMAL, INCLUDING MIGRATORY GAME, PRIOR TO 9:00 A.M., EDT.

(NO OPEN SEASON—SNOW GEESE AND SWANS. NO SUNDAY HUNTING. NO DUCK, COOT, OR MERGANSER HUNTING OCTOBER 16-NOVEMBER 3.

MIGRATORY BIRD HUNTING METHODS—Permitted: Bow and arrow, or shotgun not larger than 10-gauge, of not more than 3-shell capacity, which must be plugged to 3 shots so that plug cannot be removed without disassembling the gun; dog; blind; boat propelled by hand; floating device other than sinkbox; artificial decoys. Injured or dead waterfowl may be picked up by means of a motorboat, sailboat or other craft. Shooting is permitted from a boat or other craft having a motor attached if such craft is fastened within or tied immediately alongside of any type of stationary hunting blind. Prohibited: Electrical calling devices or recordings; rifles; handguns; live decoys; automobile; aircraft; sinkbox (battery); power boat, sailboat or any device towed by power boat or sailboat; salt or bait placed to lure, attract, or entice birds to, on, or over the area where hunters are attempting to take them; use of cattle, horses, or mules and motor-driven land, water or air conveyance or sailboat to concentrate, drive, rally or stir up waterfowl or coots.

FEDERAL STAMP FOR MIGRATORY BIRD HUNTING—It is unlawful for a person over the age of 16 years to take migratory waterfowl unless he owns and carries on his person a current Federal Migratory Bird Hunting Stamp, validated by his signature written in ink across its face. Not valid after June 30 following date of issue. This stamp is not required to hunt Rails, Gallinules, Woodcock, Wilson's or Jacksnipe, and Doves. Federal Migratory Bird Stamp available at all U. S. Post Offices.

NOTE: One (1) fully feathered wing must remain attached to each migratory bird while being transported.

Pennsylvania Seasons and Bag Limits 1966-1967

The Pennsylvania Game Commission, in Harrisburg on June 11, 1966, established the following seasons and bag limits for resident game and furbearers for the 1966-1967 hunting license year which begins September 1.

Open season includes first and last dates listed, Sundays excepted, for game. The opening hour for small game, migratory game birds and other wild birds or animals on October 29 will be 9:00 a.m., DST. On other opening days and otherwise during the season for upland and big game, the shooting hours daily are from 7:00 a.m. to 5:00 p.m., EST, excepting from June 1 to September 30, incl., 7:00 a.m. to 8:30 p.m., DST, and the hours for the October archers' deer season, which are 7:00 a.m. to 6:30 p.m., DST. (Federal Regulations for seasons, bag limits and shooting hours on migratory game birds will be announced later.)

SMALL GAME

	Daily Limit	Season Limit	DATES OF OPEN SEASONS	
			First Day	Last Day
Squirrels, Gray, Black and Fox (combined)	6	30	Oct. 15	Nov. 26 AND
Ruffed Grouse (not more than 10 in combined seasons)	2	10	Dec. 26	Jan. 7
Wild Turkey—Counties, and parts of, listed below*	1	1	Oct. 15	Nov. 26 AND
—Counties, and parts of, not listed below			Dec. 26	Jan. 7
Rabbits, Cottontail (not more than 20 in combined seasons)	4	20	Oct. 29	Nov. 26
Ring-necked Pheasants, males only	2	8	Oct. 29	Nov. 12
Bobwhite Quail	4	20	Oct. 29	Nov. 26 AND
Hares (Snowshoe Rabbits) or Varying Hares	2	6	Dec. 26	Jan. 7
Raccoons (hunting or trapping)	Unlimited		Oct. 29	Nov. 26
Woodchucks (Groundhogs)	Unlimited		Dec. 26	Jan. 2
Crackles	Unlimited		No close season	
Squirrels, Red (Closed Oct. 1 to 14, incl.)	Unlimited		No close season	
			No close season	
			All months except	
			Oct. 1-14, incl.	

BIG GAME

Bear, over one year old, by individual	1	1	Nov. 21	Nov. 26
Bears, over one year old, by hunting party of 5 or more	3	3	Nov. 21	Nov. 26
Deer, Archery Season, any deer—Statewide			Oct. 1	Oct. 28
—parts of State listed below**			Dec. 26	Jan. 7
Deer, Antlered, with 2 or more points to an antler or a spike 3 or more inches long			Nov. 28	Dec. 10
Deer, Antlered and Antlerless, with required antlerless license, buckshot only in Special Regulations Area listed below***	1	1	Nov. 28	Dec. 10
Deer, Antlerless—Statewide			Dec. 12	Dec. 13
—Counties, and parts of, listed below****			Dec. 12	Dec. 17
—Bad Weather Extension—In case of bad weather Dec. 12 and 13, in counties designated (to be announced Dec. 14)			Dec. 16 and/or 17	

FURBEARERS

Skunks and Opossums	Unlimited		No close season	
Minks	Unlimited		Nov. 24	Jan. 8
Muskkrats (traps only)	Unlimited		Nov. 24	Jan. 8
Beavers (traps only)—Certain Counties listed below *****	5	5	Feb. 11	Mar. 12
Beavers (traps only)—Remainder of State	3	3	Feb. 11	Mar. 12

NO OPEN SEASON—Hen Pheasants, Cub Bears, Elk, Otters, Hungarian Partridges, Chukar Partridges, Sharp-tailed Grouse.

For special regulations concerning deer, turkeys and beaver, consult the 1966-67 Hunting and Trapping Digest.

Fox was the most popular quarry sought by the hunter under this category. Both dogs and electronic calls were used. Success was very good. The numbers of hunters under this category are few, but no other hunters, barring deer hunters, put forth as much effort as these fellows. A 13-pound, male red fox, reportedly biggest yet, was taken in January 1967.

- E. Violations. Sound enforcement cooperation continued throughout the year between refuge personnel, GMA Baker and State fish and game personnel.

Refuge personnel were instrumental in apprehending two young men for shooting ducks after hours on the nearby State Game Lands 69; prescribed fines amounted to \$15. each.

In light of the newly established special regulations governing public use and the corresponding need to educate the public to these regulations, people found in violation of the new refuge regulations were given the benefit of the doubt. A total of 33 violators of this type were warned that they were in violation, written up, and received an explanation of the regulations. These warnings with explanation seem to have achieved our purpose and spread the word. A more stringent enforcement program will be pursued beginning in 1967.

On December 12 James Kaputa of Guys Mills, Pa. was apprehended by State personnel for killing a doe without an antlerless license. The accused had taken the doe on the refuge, pinned his regular hunting license through the deer's ear (improper tagging) and resumed hunting without his license.

This case was pending at the end of the reporting period. The prescribed State penalty for taking a deer without a license is \$100. plus one year's loss of license.

- F. Safety. Monthly Safety Meetings were held throughout the reporting period. Safety films, current flyers, needs, individual job hazards, and defensive driving were principal areas of consideration. Program chairmanship involved both permanent and temporary employees in an effort to gain more complete participation and to benefit from the experience of all employees.

Of special interest was the special Safety meeting held on July 6 in recognition of National Safety Boating Week. GMA E.J. Baker cooperated with refuge personnel in demonstrating safe canoe handling and the use of life vests. Photographs are appended.

No accidents were reported this period. The Refuge Safety Record increased to 1109 accident-free days and 1372 days without a lost-time accident by the end of the reporting period. Erie Refuge placed second among refuges in Region 5 in this endeavor.

VII. OTHER ITEMS

A. Items of Interest.

1. Training. Refuge personnel participated in the following formal training sessions:

1/10 - 14	Coggeshall, Vendel	Regional 5 Bureau Conference Boston, Mass.
2/6 - 19	Coggeshall	I.C.A.P., Supervisory Mgt. Arden Hills, Minn.
3/14	Coggeshall (annual leave)	N.A. Wildl. Conf., Pittsburgh, Pa.
4/17 - 5/21	Vendel	Refuge Mgr. Course, Arden Hills, Minn.
5/18 - 19	Coggeshall	Operation Golden Eagle, Lamar, Pa.
8/23 - 9/6	Vendel	Banding Detail, Ontario, Canada
10/16 - 21	Coggeshall	I&WCF Training Program, Washington, D. C.

Bureau sponsored correspondence courses through Cornell University were satisfactorily completed by former Clerk Snyder in "Conservation of Natural Resources", and by Maintenceman Granda in "Current Topics in Conservation".

Refuge Manager Trainee Vendel continued to receive daily on the job training; emphasis was placed on safety, reporting, work planning, supervision, fiscal procedures and property management.

Clerk Marvin received the intensive orientation and on the job training due a new employee.

2. Personnel Changes. On October 8 Mrs. Alice Snyder, Clerk/typist received a promotional transfer to the Clerk position at the Cortland National Fish Hatchery, Cortland, New York. A month later, we welcomed the appointment of Mrs. Janet A. Marvin.

of Guys Mills, Pennsylvania as Clerk/typist on a part-time basis, NTE 35 hours per week. Janet's six years of experience with the Veterans Administration has proven to be a valuable asset to her orientation and our program.

Joseph Ireland, Surveying Aid with the Division of Engineering at Oceanville, New Jersey, filled in as construction inspector on the Pool 7 job July through December. Joe resigned his bachelorhood while he was here and assumed the responsibilities of a married man.

The usual turn-over of short-term temporary personnel was experienced at least every six months.

3. Master Plan. The following was inadvertently omitted under Part III. Section A.

Part I of the Erie National Wildlife Refuge Master Plan was approved and printed. Initial distribution of copies of this booklet to key conservation and cooperating agencies has been well received. A less expensive publication of the information for distribution to the general public would have been of even greater benefit to our program.

Part II of this plan is expected to be approved and printed in the near future.

The individual operating plans under Part III will receive top priority consideration in 1967.

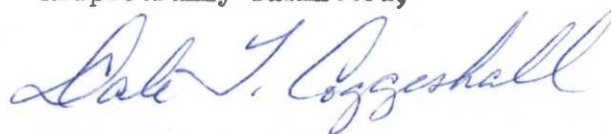
4. Bounties. The Pennsylvania Game Commission terminated the payment of bounties in this State with the removal of red and grey foxes from the bounty list, effective July 1. Great horned owls were removed from the State bounty list during the previous reporting period.
5. Credit. Refuge Manager Trainee Vendel prepared the initial draft on Parts I through VI. C. and on all the NR forms.

Refuge Manager Coggeshall prepared Parts VI. D, E, F and VII, photo captions, and edited the entire report.

Mrs. Marvin is credited with the final preparation of the report in typewritten form.

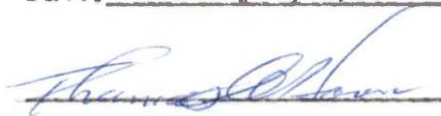
- B. Photographs. Appended.
- C. NR Forms. Appended.
- D. Signature.

Respectfully submitted,



Dale T. Coggeshall
Refuge Manager

Date: February 7, 1967



2/7/67

LISTING OF SOME U.S.G.S. BENCH MARKS
LOCATED IN
TOWNSHIPS OF RANDOLPH & WAYNE

at the Erie NWR

U.S.G.S. B.M. #79

A standard tablet in a concrete post stamped "79 BRP 1964 1594", painted "BM 1594-1" located at Hickory Corners the intersection of L.R. 20114 and L.R. 20144, 65 ft. S. and 25 ft. E. of the centerline of crossroads, 3 ft. N. of telephone pole. Adj. Elev. 1594.059

U.S.G.S. B.M. #78

A standard tablet in a concrete post stamped "78 BRP 1964 1529", painted "B.M. 1528.6" at junction of township road and State Route #198 1.1 mi. N.W. of Guys Mills thence 1.6 mi. N. along graveled road. 23 ft. S. and 47 ft. W. of, and 5.1 ft. lower than the road at the junction. Adj. Elev. 1528.620

U.S.G.S. B.M. #77

A standard tablet in a concrete post stamped, "77 BRP 1964 1506", painted "BM 1505.7", at junction of T-595 and a graveled road 2.1 mi. N.W. of Guys Mills, 60 ft. S. and 17 ft. E. of and 2 ft. lower than centerline of road at junction. Adj. Elev. 1505.736

U.S.G.S. B.M. #76

A standard tablet in a concrete post stamped, "76 BRP 1964 1492", painted "BM 1491.8" at the junction of gravel roads 1.1 mi. N.W. of Guys Mills, 26 ft. N. and 21 ft. E. of and 0.4 ft. lower than the centerline of road at the junction, 2 ft. W. of power pole. Adj. Elev. 1491.795

U.S.G.S. B.M. #93

A standard tablet in E. end of second concrete step to sidewalk stamped, "93 BRP 1964 1390", painted "BM 1389.8" at the junction of L.R. 20087 and a gravel Township road west, 17 ft. N. and 24 ft. W. of and 2.2 ft. higher than the centerline of the road at the junction. Adj. Elev. 1389.993

BM #3

U.S.G.S. B.M.

Top of brass cap in concrete base of radio antenna tower at interim headquarters on Woodcock Tract (80), established by U.S.G.S. on July 16, 1964 stamped "B.M. 3 1355.940 1966)

U.S.G.S. B.M. #92

A standard tablet in a concrete post stamped, "92 BRP 1964 1512", painted "BM 1512.2" at Gilbert Corners the intersections of State Routes #198 and 173 and T-756, 25 ft. N. and 30 ft. W. of and 1.1 ft. lower than the centerline of the crossroads, 3 ft. S. of a telephone pole. Adj. Elev. 1512.438

U.S.G.S. B.M. #35

A standard tablet in the concrete base of gasoline pumps stamped, "35 BRP 1964 1333", painted "BM 1333.3" at Cross Roads Service Station on State Route #173, in N. end of concrete base of pumps 102 ft. N. and 40 ft. W. of and 3.9 ft. lower than crossroads. Adj. Elev. 1333.260

U.S.G.S. B.M. #36

A P.S.H.D. standard disk in N. end of S.W. wingwall of bridge stamped, "36 BRP 1964 U.S.G.S.", painted "BM 1301.9" about 0.3 mi. S. of State Route #173 on L.R. 20023, level with W. end of bridge. Adj. Elev. 1301.916

U.S.G.S. B.M. #37

A standard tablet in concrete post stamped "37 BRP 1964 1321", painted "BM 1320.5" at the intersection of L.R. 20023 and T-736, 32 ft. S. and 36 ft. E. of, and 0.8 ft. higher than the road intersection. Adj. Elev. 1320.522

U.S.G.S. B.M. #38

A standard tablet in concrete post, stamped "38 BRP 1964 1316", painted "B.M. 1316.3", 7.7 mi. E. of Pettis, at crossroad intersection of L.R. 20023 and a Township Road at the E. end of Sugar Lake 30 ft. S. and 30 ft. W. of and 3.0 ft. higher than Crossroad intersection. Adj. Elev. 1316.340

U.S.G.S. B.M. #94

A standard tablet in a concrete post stamped, "94 BRP 1964 1310", painted "B.M. 1310.2", at the intersection of T-421 and T-754, 4.5 miles south of Gilbert Corners, 24 ft. N. and 27 ft. E. of, and 3.2 ft. higher than the centerline of the road. Adj. Elev. 1310.241

U.S.G.S. B.M. #95

A standard tablet in a concrete post stamped, "95 BRP 1964 1419", painted "B.M. 1418.8", at the intersections of T-423 and T-754, 3.9 mi. S. of, 60 ft. N. and 18 ft. W. of, and 0.4 ft. higher than the centerline of the crossroads. Adj. Elev. 1418.790

U.S.G.S. B.M. #96

A standard tablet in a concrete post stamped, "96 BRP 1964 1479", painted "BM 1479.1", at the intersection of State Routes #198 and 27, 2.7 mi. S. of Gilbert Corners, 36 ft. N. and 33 ft. W. of and 1.2 ft. higher than centerline of the crossroads, 3 ft. S.E. of a power pole. Adj. Elev. 1479.075

U.S.G.S. B.M. #97

A standard tablet in a concrete post stamped, "97 BRP 1964 1506", painted "B.M. 1506.3", at the intersection of State Route #198 and T-473, 1.4 mi. S. of Gilbert Corners, 24 ft. S. and 24 ft. E. of and 0.3 ft. higher than the centerline of the crossroads, 2 ft. N.W. of a telephone pole. Adj. Elev. Undetermined

PERMANENT BENCH MARKS ERIE N.W.R.

- B.M. #1 Top of brass cap in stone abuttment on the east end of the south side of the bridge over Woodcock Creek on L.R. 20014. Stamped (B.M. 1 1323.962 1966)
- B.M. #2 Top of steel post with brass cap 30 feet south of the centerline of L.R. 20085 approximately 330 feet east of its junction with T-744; near Meadville Telephone Company Pole #21. Stamped (B.M. 2 1341.496 1966)
- B.M. #3 Top of brass cap in concrete base of radio antenna tower at interim headquarters on Woodcock Tract (80), established by U.S.G.S. on July 16, 1964. Stamped (B.M. 3 1355.940 1966)
- B.M. #4 Top of steel post with brass cap on Byham Tract (145), 19 feet south of the centerline of T-743, and 5 feet east of the plank bridge over Lake Creek. Stamped (B.M. 4 1324.269 1966)
- B.M. #5 Top of brass cap in concrete wingwall on the west end of the north side of the west Bridge on State Route #27 over Lake Creek. Stamped (B.M. 5 1308.148 1966)
- B.M. #6 Top of brass cap in west end of concrete headwall on the north side of the east bridge on State Route #27 over feeder stream to Lake Creek. Stamped (B.M. 6 1309.398 1966)
- B.M. #7 Top of steel post with brass cap 16 feet south of the centerline of T-423, approximately 0.4 miles southeast of its junction with T-720. Stamped (B.M. 7 1389.706 1966)
- B.M. #8 Top of steel post with brass cap 15 feet west of the centerline of T-720, approximately 26 feet north of the plank bridge on Meyers Tract (26). Stamped (B.M. 8 1303.204 1966)
- B.M. #9 Top of steel post with brass cap 20 feet north of the centerline of State Route #173, near Pennsylvania Electric Company Line Pole on Reitz Tract (11), approximately 325 feet west of its junction with T-720. Stamped (B.M. 9 1300.700)
- B.M. #10 Top of brass cap near wood wingwall in concrete footing of the south end of the west side of the bridge railing over Lake Creek on State Route #173. Stamped (B.M. 10 1298.575 1966)

- B.M. #11 Top of steel post with brass cap at southeast corner of Slingluff Tract (188), 27 feet north of the centerline of L.R. 20023 just east of its junction with T-736. Stamped (B.M. 11 1317.236 1966)
- B.M. #12
U.S.G.S. BM #36
A P.S.H.D. standard disk in N. end of S.W. wingwall of bridge stamped, "36 BRP 1964 U.S.G.S.", painted "BM 1301.9", about 0.3 mi. S. of State Route #173 on L.R. 20023, level with W. end of bridge. Adj. Elev. 1301.916
- B.M. #13 P.S.H.D. brass cap at the west end of the south headwall of the east bridge on State Route #27 over feeder stream to Lake Creek. Not stamped. Elev. 1308.349
- B.M. #14 P.S.H.D. brass cap at the west end of the south headwall of the west bridge on State Route #27 over Lake Creek. Not stamped. Adj. Elev. 1308.154

TEMPORARY BENCH MARKS ERIE NWR

- T.B.M. #1 A spike set in the east side of a power pole with transformer, the terminus of the power line to U.S. Tr. (25), the pole and spike are painted yellow. Adj. Elev. 1320.019
- T.B.M. #2 A spike set in the east side of a power pole approximately 75 feet S.E. of the intersections of T-720 and T-423 painted yellow. Adj. Elev. 1339.070
- T.B.M. #3 A spike set in the west side of high tension pole No. MP 141 approximately 50 feet east of T-720 painted yellow. Adj. Elev. 1321.784
- T.B.M. #4 A spike set in Meadville Telephone Company telephone pole No. 31 near the intersection of State Route #27 and T-738; approximately 75 feet N.W. of the intersection, painted yellow. Adj. Elev. 1340.341
- T.B.M. #5 On the head of a spike set on the west side of a 40" elm tree approximately 125 feet east of T-738, near lane to old buildings and pines. Painted yellow. Adj. Elev. 1335.524
- T.B.M. #6 A spike set in the base of a 10" maple tree on the west side of T-738 near baseline station 10 / 14.82 of Pool #7, approximately 15 ft. west of the center-line road. Painted yellow. Adj. Elev. 1339.913
- T.B.M. #7 A spike set on the north side of Meadville Telephone Company telephone pole No. 18, approximately 150 feet S.W. of the intersections of T-738 and T-473, painted yellow. Adj. Elev. 1338.244
- T.B.M. #8 A spike set in the base of a 15" maple tree near the northwest edge of an open field, east of Lake Creek and North of T-473. Painted yellow. Adj. Elev. 1329.377
- T.B.M. #9 A spike set in the base of an 18" maple tree at the west edge of a field on the south side of the gas line. Painted yellow. Adj. Elev. 1345.880
- T.B.M. #10 A spike set in pole T.L. 29 at the intersection of Roads T-742 and L.R. 20089. Painted yellow. Adj. Elev. 1348.076
- T.B.M. #11 A nail set on a 2" x 2" wood stake at the N.E. corner of the cemetery near the refuge headquarters. Near Baseline Station 43 / 48.80 of Pool #3. Adj. Elev. 1349.037

- T.B.M. #12 A spike set on the east side of Meadville Telephone Company telephone pole No. 9 in the triangle between the gravel road past the cemetery and the paved road which goes past the school. Painted yellow. Adj. Elev. 1345.166
- T.B.M. #13 A spike set in the west side of Meadville Telephone Company telephone pole No. 16. Approximately 45 feet east of paved road. Painted yellow. Adj. Elev. 1346.674
- T.B.M. #14 A spike set in telephone pole No. 3835 south of Feeder Creek, approximately 30 feet east of T-744, near East West High Tension Power Line. Painted yellow. Adj. Elev. 1344.494
- T.B.M. #15 A spike set in the east side of Meadville Telephone Company telephone pole No. 18. Approximately 30 feet west of T-744. Painted yellow. Adj. Elev. 1367.030
- T.B.M. #16 A spike set in the east side of Meadville Telephone Company telephone pole No. 28 approximately 45 feet west of T-744 near abandoned farm buildings. Painted yellow. Adj. Elev. 1339.914
- T.B.M. #17 A spike set in the west side of Meadville Telephone Company telephone pole No. 36, approximately 25 feet east of T-744. Painted yellow. Adj. Elev. 1357.116
- T.B.M. #18 A spike set in the west side of Meadville Telephone Company telephone pole No. 39 approximately 25 feet east of T-744. Painted yellow. Adj. Elev. 1355.237
- T.B.M. #19 A spike set in the west side of Meadville Telephone Company telephone pole No. 44 approximately 20 feet east of T-744 at end of refuge fenceline. Painted yellow. Adj. Elev. 1343.813
- T.B.M. #20 A spike set in the west side of Meadville Telephone Company telephone pole No. 49, approximately 25 feet east of T-744. Painted yellow. Adj. Elev. 1343.251
- T.B.M. #21 A spike set in the west side of Meadville Telephone Company telephone pole No. 53 N-7 approximately 50 feet S.E. of the intersection of T-744 and L.R. 20114. Painted yellow. Adj. Elev. 1342.930

TBM'S 22 THRU 30 ARE ALONG POOL #7 BASELINE

- T.B.M. #22 A spike set on top of a 18" stump painted yellow and is located approximately 10 feet right of baseline station 15 / 30 of Pool #7. Adj. Elev. 1334.006

- T.B.M. #23 A nail set on top of a 22" stump approximately 25 feet right of baseline station 22 / 59.38 on the north side of logging road. Painted yellow. Adj. Elev. 1331.083
- T.B.M. #24 A nail set on top of a 24" stump on the south side of logging road near baseline station 30 / 36.56. Painted yellow. Adj. Elev. 1328.717
- T.B.M. #25 A nail set on top of a 12" stump approximately 5 feet right of baseline station 35 / 17. Painted yellow. Adj. Elev. 1327.558
- T.B.M. #26 A nail set in the base of a 5" black cherry tree approximately 3 feet right of baseline station 40 / 45. Painted yellow. Adj. Elev. 1322.001
- T.B.M. #27 A nail set in the base of a 6" black cherry tree approximately 5 feet right of baseline station 50 / 17. Painted yellow. Adj. Elev. 1326.293
- T.B.M. #28 A nail set in the base of 12" cherry tree approximately 3 feet left of baseline station 57 / 20. Painted yellow. Adj. Elev. 1326.390
- T.B.M. #29 A nail set in the base of a 8" beech tree, approximately 18 feet right of baseline station 65 / 26.25. Painted yellow. Adj. Elev. 1327.438
- T.B.M. #30 A nail set in the base of a 8" hemlock tree, approximately 5 feet right of baseline station 78 / 15.22. Painted yellow. Adj. Elev. 1322.887
- T.B.M. #31 A spike set in Meadville Telephone Company telephone pole No. 8, north of T-423, near 72" CMP. Adj. Elev. 1323.346

TBM'S #32 THRU 36 ARE ALONG POOL #9 BASELINE

- T.B.M. #32 A bent spike set in 7" oak tree approximately 2 feet right of baseline station 27 / 05. Painted yellow. Adj. Elev. 1308.255
- T.B.M. #33 A bent over spike in a 16" oak tree near baseline station 35 / 74.47; on top of the knoll at east edge of Lake Creek, painted yellow. Adj. Elev. 1313.382
- T.B.M. #34 A nail set on top of 38" oak stump in the hedgerow at the end of the field near dike area, approximately

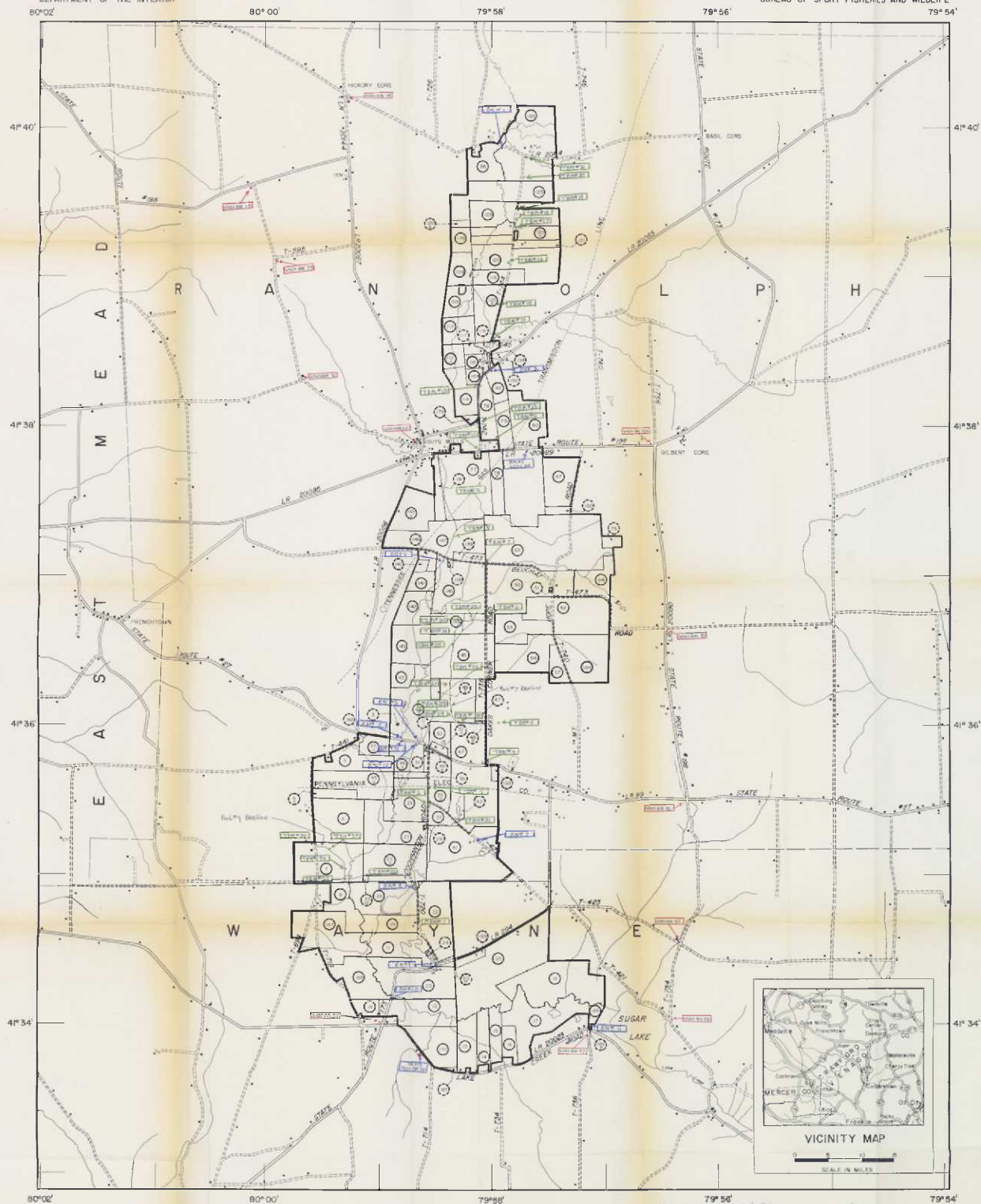
100 feet S.E. of baseline station 44 / 55.58 on the west side of Lake Creek, painted yellow. Adj. Elev. 1308.742

T.B.M. #35 A nail set in a 24" shagbark hickory, approximately 25 feet N.E. of baseline station 54 / 09.87. Painted yellow. Adj. Elev. 1363.755

T.B.M. #36 A spike set in the base of a 24" oak tree in the hedgerow on west side of the road near Cor. 1 U.S. Tr. 6. Painted yellow. Adj. Elev. 1433.350

CRAWFORD COUNTY, PENNSYLVANIA

FISH AND WILDLIFE SERVICE
BUREAU OF SPORT FISHERIES AND WILDLIFE
79° 54'



	79-80	May at South Main location.
N5	HOL industries uses Duck marks	
S	Bow industries harvest Duck marks all by the duck personnel.	
	GROVE industries trapping brush marks all by the Trapping Service	

MEAN
DECLINATION
1960

5R-PA-523

3 -1750a

Cont. NI
(Rev. March 1953)WATERFOWL
(Continuation Sheet)REFUGE Erie MONTHS OF January TO April, 19 66

(1) Species	(2) Weeks of reporting period								(3) Estimated waterfowl days use	(4) Production Broods: Estimated seen : total	
	3/12-18 11	3/19-25 12	3/26-4/1 13	4/2-8 14	4/9-15 15	4/16-22 16	4/23-29 17	4/30 18			
Swans:											
Whistling			4	9	20	20	1	1	393		
Trumpeter											
Geese:											
Canada	50	50	30	50	50	40	20	20	2,288		
Cackling											
Brant											
White-fronted											
Snow											
Blue											
Other											
Ducks:											
Mallard	540	500	500	500	400	350	250	250	22,706		
Black	210	300	500	500	400	275	50	50	15,989		
Gadwall	40								280		
Baldpate		20	25	50	75	50			1,540		
Pintail	300	150	1,000	500	550	500	75	75	22,790		
Green-winged teal			20	20	10	25	25	25	781		
Blue-winged teal	10	50	50	50	200	150	100	100	4,426		
Cinnamon teal											
Shoveler			10	10	10	10	50	50	680		
Wood	10	10	40	50	50	50			1,526		
Redhead					10	10			140		
Ring-necked			50	50	120				1,540		
Canvasback	2				4				42		
Scaup			50	50	100	75	25	25	2,125		
Goldeneye					10				70		
Bufflehead			10	10	10				210		
Ruddy											
Other H. Merganser	15	20	40	40	100	50	20	20	2,085		
W. W. Scoter							2	2	16		
Coot:	1				10	10	10	10	227		
					(over)						

	(5)	(6)	(7)
	Total Days Use	Peak Number	Total Production
Swans	393	20	- - -
Geese	2,288	50	- - -
Ducks	76,946	2,295	- - -
Coots	227	10	- - -

SUMMARY

Principal feeding areas Lake Creek drainage from Route 27 to

Sugar Lake and Woodcock Creek beaver ponds.

Principal nesting areas _____

Reported by Dale T. Coggeshall
Refuge Manager

INSTRUCTIONS (See Secs. 7531 through 7534, Wildlife Refuges Field Manual)

- (1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.
- (2) Weeks of Reporting Period: Estimated average refuge populations.
- (3) Estimated Waterfowl Days Use: Average weekly populations x number of days present for each species.
- (4) Production: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.
- (5) Total Days Use: A summary of data recorded under (3).
- (6) Peak Number: Maximum number of waterfowl present on refuge during any census of reporting period.
- (7) Total Production: A summary of data recorded under (4).

3-1750

Form NR-1

(Rev. March 1953)

WATER FOWL

REFUGE

ERIL

MONTHS OF January TO April, 1966

[illegible]

3-1750
Form NR-1
(Rev. March 1953)

WATERFOWL

REFUGE ERIE

MONTHS OF May TO August, 19 66

(2)
Weeks of reporting period
(1) Species : 5/1 - 7 : 5/8 - 14 : 5/15 - 21 : 5/22-28 : 5/29-6/4 : 6/5 - 11 : 6/12 - 18 : 6/19-25 : 6/26-7/2 : 7/3 - 9
: 1 : 2 : 3 : 4 : 5 : 6 : 7 : 8 : 9 : 10

Swans:	4									
Whistling										
Trumpeter										
Geese:	11	17	24	21	32	32	32	30	30	30
Canada										
Cackling										
Brant										
White-fronted										
Snow										
Blue										
Other										
Ducks:	150	175	180	180	180	190	200	210	220	230
Mallard	20	20	25	30	30	30	30	30	30	30
Black										
Gadwall	10									
Baldpate	10	10	5							
Pintail	15	10	5							
Green-winged teal	100	100	100	80	80	80	70	70	70	70
Blue-winged teal										
Cinnamon teal										
Shoveler	75	75	80	80	85	90	100	110	120	120
Wood										
Redhead		10	10	2	2					
Ring-necked							2			
Canvasback	16	2	16	2	2	2	2	2	2	2
Scaup										
Goldeneye	16									
Bufflehead										
Ruddy										
Other H. Merganser	20	20	20	20	20	20	25	30	35	35
Coot	10	10	5							

3 -1750a

Cont. NI
(Rev. March 1953)WATERFOWL
(Continuation Sheet)

REFUGE

E R I E

MONTHS OF May TO August, 1966

(1) Species	(2) Weeks of reporting period								(3) Estimated waterfowl days use	(4) Production Broods: Estimated seen : total	
	7/10-16 11	7/17-23 12	7/24-30 13	7/31-8/6 14	8/7-13 15	8/14-20 16	8/21-27 17	8/28-31 18			
Swans:									28		
Whistling											
Trumpeter											
Geese:											
Canada	30	30	30	25	20	20	10	10	3,008	3	12
Cackling											
Brant											
White-fronted											
Snow											
Blue											
Other											
Ducks:											
Mallard	230	250	250	250	250	250	250	250	26,515	10	175
Black	30	30	40	40	40	40	50	50	4,015		
Gadwall		10	10	10	10				280	1	9
Baldpate									70		
Pintail									175		
Green-winged teal									210		
Blue-winged teal	70	70	70	70	70	70	70	70	9,450	2	30
Cinnamon teal											
Shoveler											
Wood	125	130	150	150	150	150	150	150	14,180	7	130
Redhead											
Ring-necked	2								182		
Canvasback									14		
Scaup	2	2	2						378		
Goldeneye											
Bufflehead									112		
Ruddy											
Other H. Merganser	40	40	40	40	30	30	30	30	3,585	2	20
Coot:									175		

(over)

	(5)	(6)	(7)
	Total Days Use	Peak Number	Total Production
Swans	28	4	-0-
Geese	3,008	32	12
Ducks	59,166	562	364
Coots	175	10	-0-

SUMMARY

Principal feeding areas Refuge pools and beaver ponds
along Lake and Woodcock Creeks.

Principal nesting areas Refuge pools and beaver ponds
along Lake and Woodcock Creeks.

Reported by Dale T. Coggeshall
Refuge Manager

INSTRUCTIONS (See Secs. 7531 through 7534, Wildlife Refuges Field Manual)

- (1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.
- (2) Weeks of Reporting Period: Estimated average refuge populations.
- (3) Estimated Waterfowl Days Use: Average weekly populations x number of days present for each species.
- (4) Production: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.
- (5) Total Days Use: A summary of data recorded under (3).
- (6) Peak Number: Maximum number of waterfowl present on refuge during any census of reporting period.
- (7) Total Production: A summary of data recorded under (4).

3-1750
Form NR-1
(Rev. March 1953)

W A T E R F O W L

REFUGE Erie

MONTHS OF September TO December, 1966

(1) Species	(2) Weeks of reporting period									
	9/1-9/7 1	9/8-9/15 2	9/16-9/23 3	9/24-10/1 4	10/2-10/9 5	10/10-17 6	10/18-25 7	10/26-11/2 8	11/3-11/10 9	11/11-18 10
Swans:										
Whistling										
Trumpeter										
Geese:										
Canada	10	10	5	5	5	10	10	10	5	
Cackling										
Brant										
White-fronted										
Snow										
Blue										
Other										
Ducks:										
Mallard	240	240	250	250	200	50	50	70	50	20
Black	30	50	60	75	50	15	20	10	10	10
Gadwall										
Baldpate					5	10	10	5	5	
Pintail										
Green-winged teal										2
Blue-winged teal	70	70	75	75	50	15			5	
Cinnamon teal										
Shoveler					10					
Wood	150	160	175	150	150	110	70	60	40	20
Redhead										
Ring-necked										
Canvasback										
Scaup										
Goldeneye										
Bufflehead										
Ruddy										
Other										
H. Merganser	30	20	10	15	10	5	20	5	5	
A. Coot						100	50	75	50	25

3-1750

Cont. NR
(Rev. March 1953)WATERFOWL
(Continuation Sheet)REFUGE Erie MONTHS OF September TO December, 1966

(1) Species	(2) Weeks of reporting period								(3) Estimated waterfowl days use	(4) Production Broods:Estimate seen: total	
	11/19-26	11/27-12/3	12/4-11	12/12-19	12/20-27	12/28-31					
Swans:											
Whistling											
Trumpeter											
Geese:											
Canada									490		
Cackling											
Brant											
White-fronted											
Snow											
Blue											
Other											
Ducks:											
Mallard	20		2	6					10136		
Black	10								10486		
Gadwall									2380		
Baldpate									245		
Pintail											
Green-winged teal									14		
Blue-winged teal									2520		
Cinnamon teal											
Shoveler									70		
Wood	20	6							777		
Redhead											
Ring-necked											
Canvasback											
Scaup											
Goldeneye											
Bufflehead											
Ruddy											
Other H. Merganser									770		
Coot:	7								2149		

(over)

	(5)	(6)	(7)
	Total Days Use	Peak Number	Total Production
Swans	0	0	_____
Geese	490	10	_____
Ducks	23912 21262	570	_____
Coots	2149	100	_____

SUMMARY	
Principal feeding areas	Refuge Pools and beaver ponds along Lake and Woodcock Creeks.
Principal nesting areas	Refuge pools and beaver ponds along Lake and Woodcock Creeks

Reported by _____

INSTRUCTIONS (See Secs. 7531 through 7534, Wildlife Refuges Field Manual)

- (1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.
- (2) Weeks of Reporting Period: Estimated average refuge populations.
- (3) Estimated Waterfowl Days Use: Average weekly populations x number of days present for each species.
- (4) Production: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.
- (5) Total Days Use: A summary of data recorded under (3).
- (6) Peak Number: Maximum number of waterfowl present on refuge during any census of reporting period.
- (7) Total Production: A summary of data recorded under (4).

Interior Duplicating Section, Washington, D. C.

1953

SI 11/66

3-1751

Form N A
(Nov. 1945)

5RF-10/64

Refuge

ERIEMIGRATORY BIRDS
(other than waterfowl)Months of **January**to **April**19**66**

(1) Species	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Number
I. Water and Marsh Birds:										
Great Blue Heron	2	3/31	6	4/3	4	4/25				25
American Bittern	1	4/25	1	4/25	1	4/25				20
Pied-billed Grebe	1	3/26	3	3/29	3	3/29				10
Kingfisher	1	4/10	2	4/13	1	4/25				15
American Egret	1	4/25	1	4/25	1	4/25				4
</										

(over)

(1)	(2)	(3)	(4)	(5)	(6)
III. Doves and Pigeons:					
Mourning dove	1	1/19	12	4/26	12
White-winged dove				4/26	150
IV. Predaceous Birds:					
Golden eagle					
Duck hawk					
Barn horned owl	1	3/29	1	3/29	4
great Osprey	2	4/1	2	4/26	2
Raven					
Crow	12	2/22	30	4/4	300
Red-tailed hawk	1	1/22	5	4/25	30
Sparrow hawk	1	1/18	2	1/26	25
Turkey vulture	1	4/25	1	4/25	4
Rough-legged hawk	4	3/8	6	4/1	40
Marsh hawk	1	3/29	6	4/6	20
Reported by Dale T. Coggeshall, Refuge Mgr.					

INSTRUCTIONS

- (1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiformes)
II. Shorebirds, Gulls and Terns (Charadriiformes)
III. Doves and Pigeons (Columbiformes)
IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)
- (2) First Seen: The first refuge record for the species for the season concerned.
- (3) Peak Numbers: The greatest number of the species present in a limited interval of time.
- (4) Last Seen: The last refuge record for the species during the season concerned
- (5) Production: Estimated number of young produced based on observations and actual counts.
- (6) Total: Estimated total number of the species using the refuge during the period concerned.

3-1751

Form NF 7A

(Nov. 1, 1955)

5RF-10/64

MIGRATORY BIRDS
(other than waterfowl)

Refuge

Erie

Months of

May

to

August

1966

(1) Species	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Number
I. Water and Marsh Birds:										
Great Blue heron	1	5/6	7	6/3	2	8/31				
American bittern	1	5/6	3	8/4	1	8/31				
Pied-billed grebe	1	5/1	2	5/8	1	5/28				
Green heron	1	5/21	12	8/4	4	8/31				
II. Shorebirds, Gulls and Terns:										
Killdeer	3	5/1	25	8/15	25	8/31		10	20	50
Ring-billed gull	30	5/6	30	5/6	8	8/10				
Black tern	1	5/6	5	5/31	5	5/31				
Greater yellowlegs	2	5/6	3	5/8	1	5/22				
Solitary sandpiper	4	5/6	4	5/6	1	8/2				
Pectoral sandpiper	4	5/6	4	5/6	1	7/4				
Wilson snipe	5	5/1	5	5/1	2	8/1				
American woodcock	Present	throughout	period					50	86	150

(over)

(1)	(2)	(3)	(4)	(5)	(6)
III. Doves and Pigeons:					
Mourning dove	10	5/1	400	8/10	50
White-winged dove				8/31	18
					125
					500
IV. Predaceous Birds:					
Golden eagle					
Duck hawk					
Horned owl	Present	throughout	period		
Magnie Cooper's Hawk	1	8/14	1	8/14	1
Raven	Present	throughout	period		
Barn owl	2	5/6	20	7/27	4
Crow	2	5/6	3	7/17	1
Red-tailed hawk	1	5/1	6	7/28	1
Sparrow hawk	1	5/3	2	5/11	1
Turkey vulture	1	6/30	3	8/28	1
Rough-legged hawk	1	5/1	3	5/6	1
Marsh hawk	1	5/6	1	5/6	1
Osprey					
Reported by				D. T. Coggeshall	

INSTRUCTIONS

- (1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiformes)
II. Shorebirds, Gulls and Terns (Charadriiformes)
III. Doves and Pigeons (Columbiformes)
IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)
- (2) First Seen: The first refuge record for the species for the season concerned.
- (3) Peak Numbers: The greatest number of the species present in a limited interval of time.
- (4) Last Seen: The last refuge record for the species during the season concerned
- (5) Production: Estimated number of young produced based on observations and actual counts.
- (6) Total: Estimated total number of the species using the refuge during the period concerned.

3-1751
Form N^o A
(Nov. 1, 45)
SRF-10/64

Refuge Erie

MIGRATORY BIRDS
(other than waterfowl)

Months of September to December 1966

(1) Species Common Name	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total
	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Number
<u>I. Water and Marsh Birds:</u>										
Green Heron	4	9/15	4	9/15	1	9/19				20
Great-Blue Heron	2	9/15	2	9/21	1	12/09				5
American Bittern	1	9/19	1	9/19	1	10/12				5
Pied-billed Grebe	1	9/26	2	11/04	2	11/04				10
Kingfisher	1	9/15	1	9/15	1	11/14				2
<u>II. Shorebirds, Gulls and Terns:</u>										
Killdeer	10	9/15	25	9/23	5	10/17				60
Solitary Sandpiper	1	9/15	1	9/15	1	9/15				10
Common Snipe	10	9/26	10	9/26	1	12/21				25

(over)

(1)		(2)		(3)		(4)		(5)		(6)
III. Doves and Pigeons:										
Mourning dove		2	9/11	9	12/21	9	12/21			300
White-winged dove										
IV. Predaceous Birds:										
Great	Golden eagle									
	Duck hawk									
	Horned owl	1	9/22	1	9/22	1	9/22			5
	Magpie									
	Raven									
	Crow	55	9/22	55	9/22	4	12/21			150
	Red-tailed hawk	2	9/19	10	9/22	9	12/21			50
	Sparrow hawk	1	9/20	1	9/20	1	12/19			15
	Marsh hawk	1	10/03	1	10/03	1	11/10			5
	Turkey Vulture	1	10/10	1	10/10	1	10/10			1
	Cooper's hawk	1	12/21	1	12/21	1	12/21			5
Reported by D. T. Coggeshall, Refuge Manager										

INSTRUCTIONS

- (1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiformes)
II. Shorebirds, Gulls and Terns (Charadriiformes)
III. Doves and Pigeons (Columbiformes)
IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)
- (2) First Seen: The first refuge record for the species for the season concerned.
- (3) Peak Numbers: The greatest number of the species present in a limited interval of time.
- (4) Last Seen: The last refuge record for the species during the season concerned
- (5) Production: Estimated number of young produced based on observations and actual counts.
- (6) Total: Estimated total number of the species using the refuge during the period concerned.

3-1750b
Form NR-1B
(Rev. Nov. 1957)
5RF-10/64

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
BUREAU OF SPORT FISHERIES AND WILDLIFE

WATERFOWL UTILIZATION OF REFUGE HABITAT

Refuge Erie For 12-month period ending August 31, 1966

Reported by D. T. Coggeshall

Title Refuge Manager

(1)	(2)	(3)	(4)	(5)
Area or Unit	Habitat		Breeding	
Designation	Type Acreage	Use-days	Population	Production
#1	Crops	Ducks 34,424	16	86
	Upland	Geese 1,051		
	Marsh	Swans 77		
	Water	Coots 140		
	Total	Total 35,692	16	86
#2	Crops	Ducks 17,704	8	34
	Upland	Geese 505		
	Marsh	Swans 22		
	Water	Coots 60		
	Total	Total 18,291	8	34
#3	Crops	Ducks 34,424	14	70
	Upland	Geese 1,051		
	Marsh	Swans 77		
	Water	Coots 132		
	Total	Total 35,684	14	70
#4	Crops	Ducks 61,844	17	93
	Upland	Geese 2,006	2	9
	Marsh	Swans 147		
	Water	Coots 252		
	Total	Total 70,249	19	102
#5	Crops	Ducks 46,249	15	81
	Upland	Geese 1,334	1	3
	Marsh	Swans 98		
	Water	Coots 163		
	Total	Total 47,849	16	84
TOTAL	Crops	Ducks 200,645	70	364
	Upland	Geese 5,947	3	12
	Marsh	Swans 421		
	Water	Coots 752		
	Total	Total 207,765	73	376
	Crops	Ducks		
	Upland	Geese		
	Marsh	Swans		
	Water	Coots		
	Total	Total		

(over)

3-1750

Form No. 1-C

(Sept. 1960)

5RF-10/64

Refuge Erie National Wildlife RefugeWATERFOWL HUNTER KILL SURVEYYear 19 66

(1) Weeks of Hunting	(2) No. Hunters Checked	(3) Hunter Hours	(4) Waterfowl Species and Nos. of Each Bagged	(5) Total Bagged	(6) Crippling Loss	(7) Total Kill	(8) Est. No. of Hunters	(9) Est. Total Kill
10/08-10/15		100	No actual bag-check recorded on refuge.	4	1	5	25	5
11/04-11/10		100		4	1	5	25	5
11/11-11/17		60		2	1	3	15	3
11/18-11/24		60					15	
11/25-12/01		20					5	
12/02-12/08		20					5	
12/09-12/15		20					5	
Total weeks = 7	None	380	Wood duck (5), Mallard (3), Black duck (2)	10	3	13	95	13
Information above based only on cursory observations.								

(over)

INSTRUCTIONS

- (1) The first week of hunting begins with opening day and ends at the close of hunting 6 days later. Successive weeks follow the same pattern.
- (2) The goal is to survey a minimum of 25 per cent of refuge hunters each week and to record data only from those who have completed their day's hunting. This information should be collected during each day of the week and in each area hunted in relative proportion to the hunter effort expended. When the 25 per cent goal cannot be achieved, particular care should be taken to collect representative data.
- (3) Record the total number of hours the hunters spend hunting on the refuge.
- (4) List waterfowl species in decreasing order of numbers bagged. Sample entry: Mallard (61), Pintail (36), Redhead (16), Gadwall (11), Widgeon (6), Coot (4), Canada Goose (3), Green-winged Teal (1).
- (5) Record total numbers of waterfowl bagged.
- (6) Record total numbers of waterfowl reported knocked down but not recovered.
- (7) Total of Columns 5 and 6.
- (8) Estimate the total number of hunters who hunted on the refuge during the week, including hunters checked (Column 2).
- (9) Kill sample projected to 100 per cent.
$$\text{Column 9} = \frac{\text{Column 8}}{\text{Column 2}} \times \text{Column 7}.$$

REPORT OF BANDING ON Erie REFUGE - CALENDAR YEAR 1966

Geese	Method of Trapping*	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Totals
Canada														
Brant														
Ducks														
Mallard	CAGE							1	16					17
Black														
Gr.-Winged Teal														
Bl.-Winged Teal	CAGE								3					3
Wood Duck	CAGE							17	39					56
Eider														
Total Waterfowl								18	58					76
Other														
Mourning Dove	CAGE								156					156
Woodcock														

Quotas: Canada geese -- ; Mallard -- ; Blacks -- ; Other --

*Method of Trapping: CAN - Cannon Net; CAGE - Cage; MIST - Mist Net; NITE - Night-lighting

3-1752
Form R-2
(April 1946)

UPLAND GAME BIRDS

Refuge ERIE

Months of January to April, 1966

(1) Species	(2) Density		(3) Young Produced	(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'y'd. Estimated Total	Percentage	Hunting	For Re- stocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Ruffed Grouse	Cropland, Grassland & Timberland 3,669 Acres	21						155	Overwintered.
Ring-necked Pheasant	Cropland, Grassland Timberland 3,669 Acres	9						60	Overwintered; no spring releases on refuge.
Bob-white Quail	Cropland, Grassland Timberland 3,669 Acres	183							No observations this period.
Turkey	Cropland, Grassland & Timberland 3,669 Acres	3669						1	Last observed 11/5/65.
Mourning Dove	Cropland, Grassland, Timberland, Marsh & Water 4,029 Acres	16						150	Breeding and migrating.
Woodcock	Cropland, Grassland, Timberland & Marsh 3,900 Acres	39						300	Breeding and migrating.

5RF-8-64

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.*

- (1) SPECIES: Use correct common name.
- (2) DENSITY: Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
- (3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.
- (4) SEX RATIO: This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.
- (5) REMOVALS: Indicate total number in each category removed during the report period.
- (6) TOTAL: Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.
- (7) REMARKS: Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

* Only columns applicable to the period covered should be used.

3-1752
Form R-2
(April 1946)

UPLAND GAME BIRDS

Refuge Erie

Months of May to August, 19 66

(1) Species	(2) Density		(3) Young Produced		(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'd.	Estimated Total	Percentage	Hunting	For Re- stocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Ruffed grouse	Grassland, Timber- land (4,432 acres)	22	* 4	40	50:50				250	* Actual observations.
Bobwhite quail	Grassland, Cropland & Timberland (4,617 acres)	462	-	-					10	Observation of single birds made on several occasions during period.
Ring-necked pheasant	Grassland, crop- land, Timberland (4,617 acres)	12	* 8	63	20:80				200	* Actual observations.
Mourning dove	Cropland, Grass- land, Timberland, Marsh & Water (4,977 acres)	10	-	125	50:50				500	Production estimate based on Call-Count Survey.
Woodcock	Cropland, Grass- land, Timberland & Marsh (4,746 acres)	46	-	86	50:50				150	Production estimate based on Singing Ground Survey.
Turkey	Cropland, Grass- land & Timberland (4,617 acres)	-	-	-					-	Last observed 11/5/65.

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.*

- (1) SPECIES: Use correct common name.
- (2) DENSITY: Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
- (3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.
- (4) SEX RATIO: This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.
- (5) REMOVALS: Indicate total number in each category removed during the report period.
- (6) TOTAL: Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.
- (7) REMARKS: Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

* Only columns applicable to the period covered should be used.

3-1752
Form R-2
(April 1946)

UPLAND GAME BIRDS

Refuge Erie

Months of September to December, 1966

(1) Species	(2) Density		(3) Young Produced		(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'd.	Estimated Total	M:F Percentage	Hunting	For Re- stocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Ruffed Grouse	Grassland, Timber- land (4432 acres)	22	-	-	50:50	25			200	some influx into Refuge hemlocks from surrounding lands for winter cover.
Bobwhite Quail	Grassland, crop- land, & timberland (4617 acres)	923	-	-	50:50				5	Seen in private buckwheat bordering refuge near Hdqtrs.
Ring-necked Pheasant	Grassland, crop- land, & timberland (4617 acres)	15	1	6	20:80	60			300	Releases made prior to hunting season by Pa. Game Commission on or near Refuge. Few birds observed at end of period.
Mourning Dove	Cropland, grassland, timberland, & marsh (4865 acres)	48	-	-	50:50	40			100	Small flocks overwintering on or near Refuge.
Woodcock	Cropland, grassland timberland & marsh (4865 acres)	48	-	-	50:50	10			100	None known to have been taken during hunting season.
Turkey	Cropland, grassland, & timberland (4617 acres)	462	-	-	33:67				10	Release of 6 birds made by Pa. Game Commission On Unit 3, Tract 64 - 10/4/66
<p>*Based on total Refuge acreage of 4,977 acres including options as given in the Hunting & Fishing Plan, dated March 1966.</p> <p>Croplands - 185, Grasslands - 2028, Timberland - 2409, Marsh & Water - 360.</p>										

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.*

- (1) SPECIES: Use correct common name.
- (2) DENSITY: Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
- (3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.
- (4) SEX RATIO: This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.
- (5) REMOVALS: Indicate total number in each category removed during the report period.
- (6) TOTAL: Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.
- (7) REMARKS: Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

* Only columns applicable to the period covered should be used.

3-1752
Form A-3
(June 1945)

BIG GAME

Refuge Erie National Wildlife Refuge Calendar Year 1966

(1) Species	(2) Density	(3) Young Produced	(4) Removals				(5) Losses			(6) Introductions	(7) Estimated Total Refuge Population		(8) Sex Ratio
			Hunting	For Re- stocking	Sold	For Research	Predation	Disease	Winter Loss		At period of Greatest use	As of Dec. 31	
Common Name	Cover types, total Acreage of Habitat	Number								Number	Source		M:F
White-tailed Deer	Croplands, grassland, and uncultivated fields 2,208A. Timberland and brush areas 2,409A. Marsh and bottom lands 218A. <u>Total Acreage</u> 4,865	100	25				Total All Non-Hunting Losses			50		195 125	1:3

Remarks: Poor weather on opening day of buck season and during the two-day doe season contributed to a decreased hunting take. Road kills immediately before and following the hunting season were relatively high in the vicinity of the refuge, although not particularly on the refuge.

Reported by Dale T. Coggeshall, Refuge Manager

INSTRUCTIONS

Form NR-3 - BIG GAME

- (1) SPECIES: Use correct common name; i.e., Mule deer, black-tailed deer, white-tailed deer. 'It is unnecessary to indicate sub-species such as northern or Louisiana white-tailed deer.
- (2) DENSITY: Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge: once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
- (3) YOUNG PRODUCED: Estimated total number of young produced on refuge.
- (4) REMCVALS: Indicate total number in each category removed during the year.
- (5) LCSSSES: On the basis of known records or reliable estimates indicate total losses in each category during the year.
- (6) INTRODUCTIONS: Indicate the number and refuge or agency from which stock was secured.
- (7) TOTAL REFUGE POPULATION: Give the estimated population of each species on the refuge at period of its greatest abundance and also as of Dec. 31.
- (8) SEX RATIC: Indicate the percentage of males and females of each species as determined from field observations or through removals.

3-1754
Form NR-
(June 1945)

SMALL MAMMAL

Refuge ERIE

Year ending April 30, 1966

(1) Species	(2) Density		(3) Removals					(4) Disposition of Furs					(5) Total Popula- tion		
Common Name	Cover Types & Total Acreage of Habitat	Acres Per Animal	Hunting	Fur Harvest	Predator Control *	For Re- stocking	For Re- search	Share Trapping			Total Refuge Furs Shipped	Furs Donated	Furs Destroyed		
								Permit Number	Trappers Share	Refuge share					
Beaver	Marsh & Water - 360 A		P	R	O	T	E	C	-	T	E	D			30
Muskrat	" "			625											2,000
Mink	" "			15											50
Raccoon	Entire refuge - 4029A		10	20											200
Striped Skunk	" "		6	4											75
Opposum	" "		10												150
Red & Gray Fox	" "		20												75
Woodchuck	Upland - 3669 A		80												300

List removals by Predator Animal Hunter

* List removals by Predator Animal Hunter

REMARKS: Trapping permitted under Free Use Permit.
Inventory method — armchair guestimates for hunting removals and total population.

Reported by Dale T. Coggeshall, Refuge Manager

INSTRUCTIONS

Form NR-4 - SMALL MAMMALS (Include data on all species of importance in the management program; i. e., muskrats, beaver, coon, mink, coyote. Data on small rodents may be omitted except for estimated total population of each species considered in control operations.)

- (1) SPECIES: Use correct common name. Example: Striped skunk, spotted skunk, short-tailed weasel, gray squirrel, fox squirrel, white-tailed jackrabbit, etc. (Accepted common names in current use are found in the "Field Book of North American Mammals" by H. E. Anthony and the "Manual of the Vertebrate Animals of the Northeastern United States" by David Starr Jordan.)
- (2) DENSITY: Applies particularly to those species considered in removal programs. Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottom land hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
- (3) REMOVALS: Indicate the total number under each category removed since April 30 of the previous year, including any taken on the refuge by Service Predatory Animal Hunter. Also show any removals not falling under headings listed.
- (4) DISPOSITION OF FUR: On share-trapped furs list the permit number, trapper's share, and refuge share. Indicate the number of pelts shipped to market, including furs taken by Service personnel. Total number of pelts of each species destroyed because of unprime-ness or damaged condition, and furs donated to institutions or other agencies should be shown in the column provided.
- (5) TOTAL POPULATION: Estimated total population of each species reported on as of April 30.

REMARKS: Indicate inventory method(s) used, size of sample area(s), introductions, and any other pertinent information not specifically requested.

3-1755

Form R-5
6070

DISEASE

Refuge Erie National Wildlife RefugeYear 1966

Botulism

Period of outbreak _____

Period of heaviest losses _____

Losses:

	Actual Count	Estimated
(a) Waterfowl	_____	_____
(b) Shorebirds	_____	_____
(c) Other	_____	_____

Number Hospitalized	No. Recovered	% Recovered
(a) Waterfowl	_____	_____
(b) Shorebirds	_____	_____
(c) Other	_____	_____

Areas affected (location and approximate acreage) _____

Water conditions (average depth of water in sickness areas, reflooding of exposed flats, etc.) _____

Condition of vegetation and invertebrate life _____

Remarks No diseases recorded.

Lead Poisoning or other Disease

Kind of disease _____

Species affected _____

Number Affected Species	Actual Count	Estimated
_____	_____	_____
_____	_____	_____
_____	_____	_____

Number Recovered _____

Number lost _____

Source of infection _____

Water conditions _____

Food conditions _____

Remarks No diseases recorded.

PUBLIC RELATIONS
(See Instructions on Reverse Side)

Refuge Erie National Wildlife RefugeCalendar Year 1966

1. Visits

a. Hunting 1,270 b. Fishing 230 c. Miscellaneous 6,100 d. TOTAL VISITS 7,600

1a. Hunting (on refuge lands)

TYPE	HUNTERS	ACRES	MANAGED BY
Waterfowl	<u>95</u>	<u>1856</u>	<u>Refuge</u>
Upland Game	<u>325</u>	<u>1856</u>	<u>Refuge</u>
Big Game	<u>550</u>	<u>4920</u>	<u>Refuge</u>
Other	<u>300</u>	<u>1856</u>	<u>Refuge</u>

Number of permanent blinds 0Man-days of bow hunting included above 30

Estimated man-days of hunting on lands adjacent to
refuge 5,000

1b. Fishing (area open to fishing on refuge lands)

TYPE OF AREA	ACRES	MILES
Ponds or Lakes	<u>3</u>	<u>.16</u>
Streams and Shores	<u>1.7</u>	<u>.70</u>

1c. Miscellaneous Visits

Recreation 5,650 Official 150
Economic Use 300 Industrial _____

2. Refuge Participation (groups)

TYPE OF ORGANIZATION	ON REFUGE		OFF REFUGE	
	NO. OF GROUPS	NUMBER IN GROUPS	NO. OF GROUPS	NUMBER IN GROUPS
Sportsmen Clubs	<u>1</u>	<u>30</u>	<u>4</u>	<u>260</u>
Bird and Garden Clubs				
Schools	<u>1</u>	<u>8</u>		
Service Clubs			<u>3</u>	<u>61</u>
Youth Groups	<u>1</u>	<u>10</u>	<u>3</u>	<u>76</u>
Professional-Scientific				
Religious Groups			<u>1</u>	<u>25</u>
State or Federal Govt.			<u>2</u>	<u>30</u>
Other			<u>3</u>	<u>45</u>

3. Other Activities

TYPE	NUMBER	TYPE	NUMBER
Press Releases	<u>36</u>	Radio Presentations	
Newspapers (P.R.'s sent to)	<u>66</u>	Exhibits (Parade)	<u>1</u>
TV Presentations		Est. Exhibit Viewers	<u>3,500</u>

Bureau of Sport Fisheries and Wildlife
PUBLIC RELATIONS
(See Instructions Slide)
INSTRUCTIONS

Item 1: Total of a, b, and c, equal d.

"Visit" - definition. Any person who is on refuge lands or waters during a day or part thereof for the purpose of: hunting, fishing, bird-watching, recreation, business or economic use, official visit, or similar interest. INCLUDE - those who stop within the refuge while traveling on a public highway because of an interest in the area. EXCLUDE - persons engaged in oil or other industry not directly related to the refuge, persons using refuge as most direct route or principal avenue of traffic, and those boating on navigable rivers or the Intercoastal Canal, unless they stop to observe wildlife on the refuge.

Computing visits. Where actual counts are impractical, "sampling" is used with midweek and week-end samples varied by season or weather. A conversion factor of 3.5 (of passengers per car) is used when accurate figures are not available. Each refuge will develop a conversion factor for boats based on range of usage. Count a camper once for each 24-hour period or fraction thereof.

Item 1a: Acres - of refuge open for each type of hunting.

Managed hunts require check in and out of hunters, issuance of permits, or assignment of blinds.

Other - INCLUDE crow, fox, and similar hunting.

Lands adjacent to refuge. Normally considered within 1 mile or less of boundary, unless established sampling procedures cover a wider area. For big game hunting, the distance may be greater.

Item 1b: Acres of streams open to fishing, if practical; otherwise just miles open. Information on "shores" is primarily for coastal fishing.

Item 1c: Recreation. INCLUDE photography, observing wildlife, picnicking, swimming, boating, camping, visitor center use, tours, etc. TOTAL Recreation, Official, and Economic Use visits under Item 1.

Industrial. INCLUDE persons engaged in industry, i.e., oil industry or factories. EXCLUDE these from Item 1.

Item 2: INCLUDE the "On Refuge" groups in Items 1c and 1. In "Off Refuge" column include only those group meetings in which refuge employees actually participate. EXCLUDE these from Items 1c and 1.

Item 3: Exhibits - INCLUDE displays, fairs, parades, and exhibits OFF the refuge; EXCLUDE those ON.

UNITED STATES
DEPARTMENT OF THE INTERIOR
Fish and Wildlife Service
Bureau of Sport Fisheries and Wildlife
Washington, D.C. 20240

Erie N.W.R.
Name of project

1966 PUBLIC USE CONVERSION FACTORS

	Number of Visitors	Estimated Average Hours for Each Visit <u>1/</u>	Total Hours
A. <u>Hunting</u>			
Waterfowl <u>2/</u>	95	4	380
Upland Game <u>2/</u>	325	6	1950
Big Game	550	6	3300
Other <u>3/</u>	300	3	900
Total <u>11/</u>	1270		6430
B. <u>Fishing</u>			
Total <u>11/</u>	230	3	690
* C. <u>Miscellaneous</u>			
Nature Study <u>4/</u>	200	3	600
Driving & Sightseeing <u>5/</u>	3300	1	3300
Picnicking	2000	3	6000
Swimming			
Boating <u>6/</u>			
Ice Skating			
Water Skiing			
Camping, Tent <u>7/</u>			
Camping, Trailer or Camper			
Camping, Group <u>8/</u>			
Other Accommodations <u>9/</u>			
Berry & Mushroom Picking	100	1	100
Visitor Centers & Museums			
Other Uses (Identify) <u>10/</u>			
Courtesy visits	50	1	50
_____			
_____			
_____			
Total <u>11/</u>	5650		10150
D. <u>Grand Total</u> of A, B, C <u>11/</u>	7150		17270
Total hours divided by 12 equals number of Visitor days			1456

(See reverse side for footnotes)

* C. Miscellaneous - Total Misc. Visits figure does not include economic use and official visits and therefore, does not agree w/line 1 on Form NR-6.

FOOTNOTES

- 1/ Will never exceed 24 hours. For additional trip or camping hours, increase the number of visitors.
- 2/ Will include rabbit and squirrel hunting, and dove shooting.
- 3/ Do not include trapping. Should include crow and "varmint" hunting.
- 4/ Includes birdwatching, wildlife observations, photography, and use of nature trails.
- 5/ Include visitation to historic sites.
- 6/ Other than for hunting and fishing. Include canoeing, and boating tours.
- 7/ Most agencies report camping as 12 hours; the remaining portion of the 24 hours being recorded for other major uses, except where camping facilitates hunting or fishing.
- 8/ Include "day" camps.
- 9/ Include lodges, shelters, motels.
- 10/ Consider rock hounding, shell collecting, hiking, horseback riding, winter sports, dog trials, educational groups. Do not include economic, industrial, or official uses or visits.
- 11/ Totals will agree with line 1 on Form NR-6

3-1757
Form NR-7
(Rev. e 1960)
SRF-10/04

(1)

NONAGRICULTURAL COLLECTIONS RECEIPTS, AND PLANTINGS

Refuge ERIE NWR

Year 1966

Species	Collections and Receipts (Seeds, rootstocks, trees, shrubs)						Plantings (Marsh - Aquatic - Upland)						
	Amount (Lbs., bus., etc.)	(2) C or R	Date	Method or Source	Cost	(3) Total Amount on Hand	Location of Area Planted	Rate of Seeding or Planting	Amount Planted (Acres or Yards of Shoreline)	Amount and Nature of Propagules	Date	Survival	Cause of Loss
1. Kentucky 31 Tall Fescue Birdsfoot Trefoil Timothy							Boundary Right of way T-123, T-17.	20 lbs/A broadcast 10:4:6	4 A	Cover	9/28 7/19	Fair	Early Frosts
2. Kentucky 31 Tall Fescue Creeping Fescue Red-top Clover							Picnic Area Extension	40 lbs/A broadcast 16:8:16	2 A	Cover	4/27	Fair	Drought & Shade
3. Kentucky 31 Tall Fescue, Birdsfoot, Trefoil, Red-top Clover.							T-54 & T-184 Pool dikes	30 lb/A broadcast 15:6:9	4 A	Cover	10/5	Good	

- (1) Report agronomic farm crops on Form NR-8
(2) C = Collections and R = Receipts
(3) Use "S" to denote surplus

Remarks: Established as a grass cover crop along 1/4 mile of boundary, picnic area extension, and two small upland pool dikes to prevent soil erosion and facilitate maintenance and protection.

Total acreage planted:

Marsh and aquatic _____
Hedgerows, cover patches 10 acres
Food strips, food patches _____
Forest plantings _____

3-1758
 For IR-8
 (Rev. Jan. 1956)
 5RF-10/64

Fish and Wildlife Service Branch of Wildlife Refuges

CULTIVATED CROPS - HAYING - GRAZING

Refuge Erie County Crawford State Pennsylvania

Cultivated Crops Grown	Permittee's Share Harvested		Government's Share or Return				Total Acreage Planted	Green Manure, Cover and Water- fowl Browsing Crops Type and Kind	Total Acreage
	Acres	Bu./Tons	Harvested		Unharvested				
			Acres	Bu./Tons	Acres	Bu./Tons			
Jap. Millet					80	160T	80	Japanese Millet	80
Winter Wheat					62	124T	62	(cover crop)	
Buckwheat					8	—	8	Winter Wheat	62
					150	184T	150	(cover/browse crop)	142
Soils rehabilitation was the primary purpose for the above.									
								Fallow Ag. Land	

No. of Permittees: Agricultural Operations — Haying Operations 6 Grazing Operations 8

Hay - Improved (Specify Kind)	Tons Harvested	Acres	Cash Revenue	GRAZING	Number Animals	AUM'S	Cash Revenue	ACREAGE
Legume	5	3.5	21.00	1. Cattle	175	768	\$470.75	519
Timothy	125*	97.0*	173.00	2. Other				
	130	102.5	\$194.00					
*Includes 40 tons from 47 acres for refuge mulch.				1. Total Refuge Acreage Under Cultivation				142
Hay - Wild				2. Acreage Cultivated as Service Operation				142

DIRECTIONS FOR PREPARING FORM NR-8
CULTIVATED CROPS - HAYING - GRAZING

Report Form NR-8 should be prepared on a calendar-year basis for all crops which were planted during the calendar year and for haying and grazing operations carried on during the same period.

Separate reports shall be furnished for Refuge lands in each county when a refuge is located in more than one county or state.

Cultivated Crops Grown - List all crops planted, grown and harvested on the refuge during the reporting period regardless of purpose. Crops in kind which have been planted by more than one permittee or this Service shall be combined for reporting purposes.

Permittee's Share - Only the number of acres utilized by the permittee for his own benefit should be shown under the Acres column, and only the number of bushels of farm crops harvested by the permittee for himself should be shown under the Bushels Harvested column. Report all crops harvested in bushels or fractions thereof except such crops as silage, watermelons, cotton, tobacco, and hay, which should be reported in tons or fractions thereof.

Government's Share or Return - Harvested - Show the acreage and number of bushels harvested for the Government of crops produced by permittees or refuge personnel. Unharvested - Show the exact acreage and the estimated number of bushels of grain available for wildlife. If grazing is made available to waterfowl through the planting of grain, cover, green manure, grazing or hay crops, estimate the tonnage of green food produced or utilized and report under Bushels Unharvested column.

Total Acreage Planted - Report all acreage planted, including crop failures.

Green Manure, Cover and Waterfowl Grazing Crops - Specify the acreage, kind and purpose of the crop. These crops and the acreage may be duplicated under cultivated crops if planted during the year, or a duplication may occur under hay if the crop results from a perennial planting.

Hay - Improved - List separately the kinds of improved hay grown. Annual plantings should also be reported under Cultivated Crops, and perennial hay should be listed in the same manner at time of planting.

Total Refuge Acreage Under Cultivation - Report total land area devoted to agricultural purposes during the year.

TIMBER 1 OVAL

Refuge Erie National Wildlife Refuge Year 1966

Permittee	Permit No.	Unit or Location	Acreage	No. of Units Expressed in B. F., ties, etc.	Rate of Charge	Total Income	Reservations and/or Diameter Limits	Species Cut
Not applicable this period.								

Total acreage cut over.....

Total income.....

No. of units removed B. F.

Method of slash disposal.....

Cords.....

Ties.....

.....

3-1979 (NR-12)
(9/63)

Bureau of Sport Fisheries and Wildlife

Refuge

Erie National Wildlife Refuge

ANNUAL REPORT OF PESTICIDE APPLICATION

Proposal Number

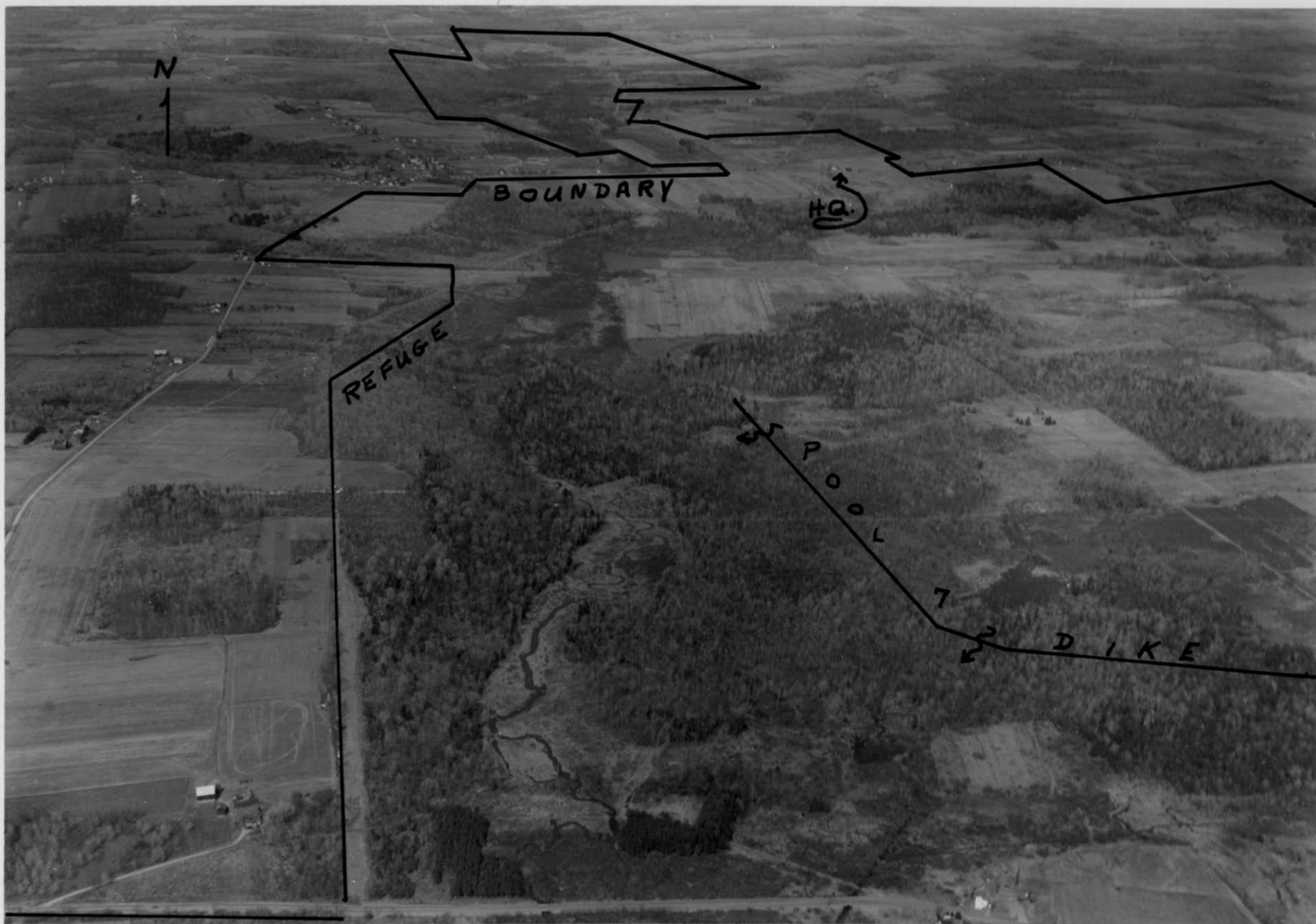
Reporting Year

1966

INSTRUCTIONS: Wildlife Refuges Manual, secs. 3252d, 3394b and 3395.

Dates of Application	List of Target Pests(s)	Location of Area Treated	Total Acres Treated	Chemical(s) Used	Total Amount of Chemical Applied	Application Rate	Carrier and Rate	Method of Application
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Not applicable this period.								

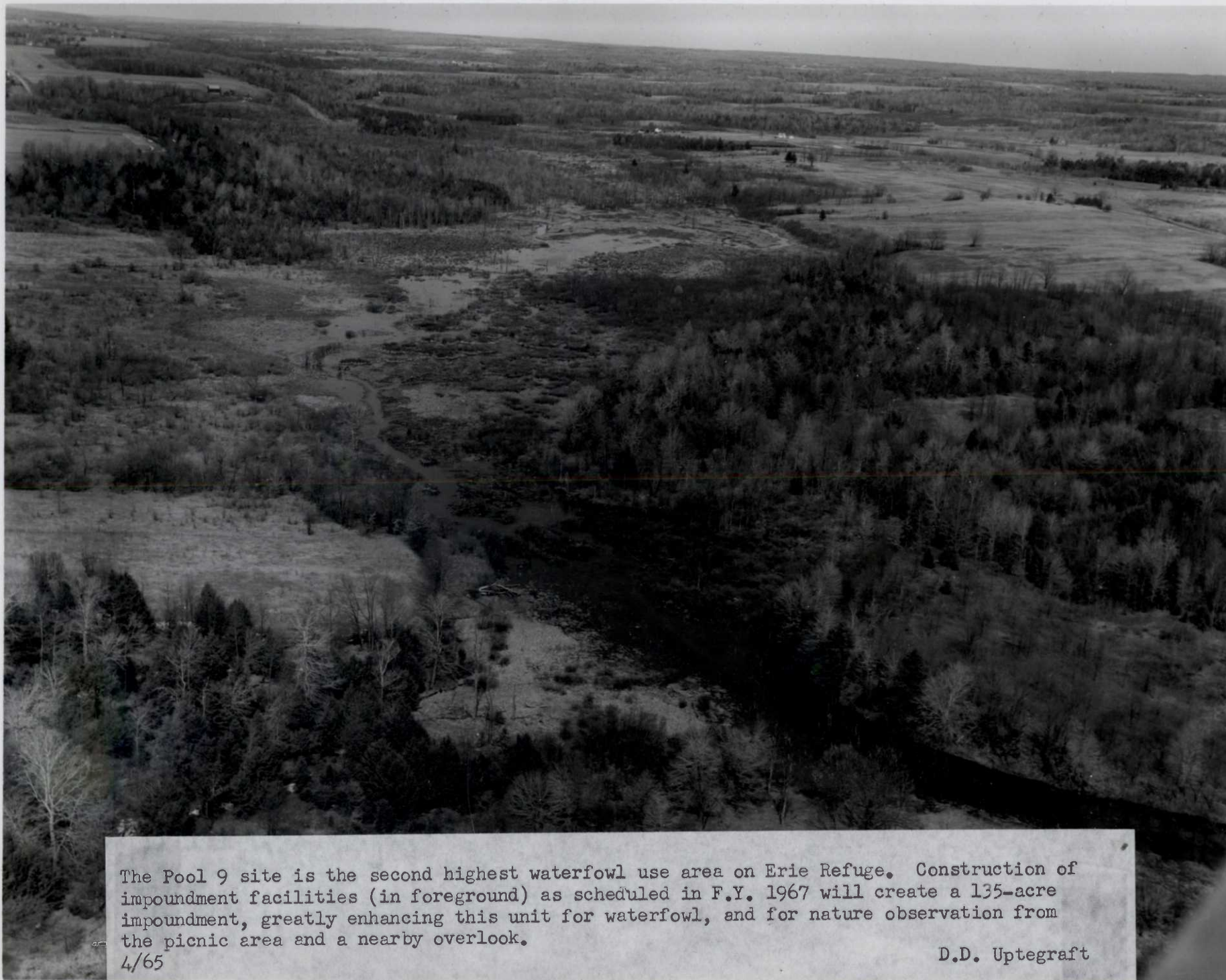
10. Summary of results (continue on reverse side, if necessary)



Major development was initiated in July 1966 with the construction of Pool 7 impoundment facilities. Two water control structures and 4,800 feet of low level dike will facilitate the management of this 60-acre, wooded pool for ducks.

4/65

D.D. Uptegraft



The Pool 9 site is the second highest waterfowl use area on Erie Refuge. Construction of impoundment facilities (in foreground) as scheduled in F.Y. 1967 will create a 135-acre impoundment, greatly enhancing this unit for waterfowl, and for nature observation from the picnic area and a nearby overlook.

4/65

D.D. Uptegraft



The quality of the core material for the Pool 7 dike was assured by the effectiveness of the stripping operation.

9/66

D.T. Coggeshall



Core material had to be hauled 1.5 miles from the borrow area to the job site.

9/66

D.T. Coggeshall



Excellent compaction of fill material was achieved by the contractor's heavy duty diesel trucks, dozer and sheep's foot roller.
9/66

D.T. Coggeshall



In spite of dry weather a portion of the designated, embankment borrow area proved troublesome when the contractor's excavating operation reached the ground water table.
9/66

D. T. Coggeshall



Boundary posting was initiated at Erie Refuge on January 5, 1966. National Wildlife Refuge signs identified refuge property along 43 miles of boundary and interior, public roads by December 31, 1966.
12/66

D.T. Coggeshall



National Wildlife Week provided opportunity for cooperation with local Boy Scouts in the clean up of about 2,000 pounds of litter and trash along 20 miles of roadsides passing through the refuge.

5/66

D.T. Coggeshall





Contracted equipment facilitated the development of two upland ponds. Engineering services were performed by the Soil Conservation Service.
6/66

D.T. Coggeshall



Calcium chloride solution was applied to the headquarters parking area and the picnic area access road and parking lot as an anti-dust measure.

5/66

D.T. Coggeshall



The Erie Refuge Picnic Area was designated as a Land and Water Conservation Fund collection site in 1966. Modification of the parking area entrance was necessary to accomodate the "money tree" depository and explanatory signs.

5/66

D.T. Coggeshall



The 1966 Erie Refuge entry in the annual 4th of July parade at Guys Mills, Penna. portrayed the message of the Golden Eagle Program.
7/66

D.T. Coggeshall





GMA Baker and Erie Refuge personnel combined their resources during National Safe Boating Week to demonstrate canoe safety and the value of a lifevest.

7/66

C.G. Vendel





The seriousness of our Station Safety Program paid off as we completed our third consecutive year without a recorded accident.
12/66

D.T. Coggeshall



SEASON'S

GREETINGS

ERIE REFUGE STAFF

To one and all, from left to right: Robert Granda, Maintenceman: Dale T. Coggeshall, Refuge Manager; Mrs. Janet A. Marvin, Clerk- Typist; Cornelis G. Vendel, Refuge Manager Trainee. Mrs. Marvin EOD 11/7/66; Mr. Vendel 12/20/65.
12/66

J.K. Ireland